Part K

Section 2: Multi-Species Monitoring Study

Multi-Species Monitoring Study

by Cliff Kennedy and Joe Hiss

Introduction

The need to adequately address the effects of wildlife habitat alterations due to land management activities has prompted Pacific Lumber Company to undertake a multi-species monitoring program. This program, initiated in 1995, involves identification of plants and animals within various habitat types on PL ownership. The objective of this study is to provide a better understanding of species-habitat relationships. The information from this study will allow us to develop comprehensive long-term forest management and habitat conservation plans.

Methods

The 1995 season concentrated efforts in three major watersheds: Beer Bottle, Camp and **Elkhead** (Figure 1). The **Beer** Bottle watershed consists of a deeply incised drainage (Bear River) running east to west with slopes ranging from 10-90%. averaging about 40%. Elevation ranges from 1000-3200 feet. Precipitation is mainly rainfall with some snow in the winter months on the ridges. A maritime fog layer is common on the ridges during the summer months. sometimes contributing **enough** moisture to generate runoff. Annual precipitation is about 100 inches. Soil types are Hugo and Melbourne which support Douglas-fir and tanoak forests. The ridgetops are dominated by Wilder soil type supporting perennial grassland Most of the drainage was logged during the 1940's and 50's using tractor skidding. There are a few remnant stands of unlogged forest. Data from this watershed represents the Doug-fir forest type.

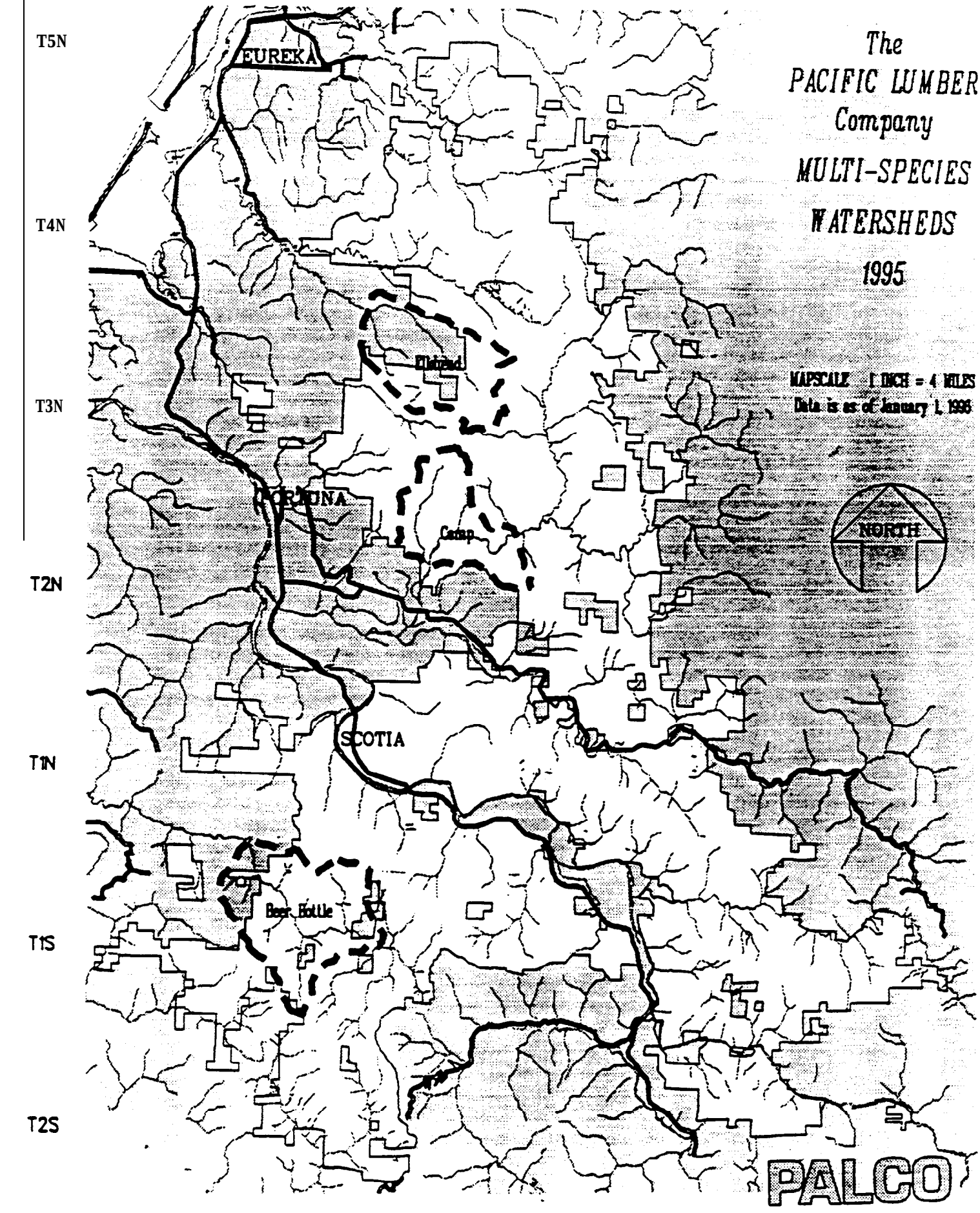
The Camp watershed encompasses the lower end of the Yager Creek drainage. Slopes range from 10-80%, averaging 30%. Elevation ranges from 200-2100 feet. Precipitation total is about 60 inches mainly as rainfall. This watershed **also experiences a summer maritime fog influence. Soil types are Hugo and Larabee supporting a redwood forest type. The majority of the watershed was logged from 1920 through** 1970. One block of uncut forest remains.

The Elkhead watershed consists of the upper end of the South Fork Elk River. Slopes range from 10-50% with an average of 20% Elevation, precipitation, climate and soils are similar to the Camp watershed. Logging activity commenced in the 1960's and reached a peak in the 1980's. A large stand of old-growth still remains. The data from Camp and Elkhead watersheds were combined to represent the redwood forest type.

Plots were established in the following habitat types: perennial grasslands. forest openings, young forests, mid-successional forests, late seral forests, and old-growth forests. Both vegetation and animal information was collected on each plot The vegetation component required measurement of both overstory and understory. The terrestrial vertebrate information contained 5 components: 1) pit trapping for herptofauna and small mammals, 2) time-area search for herptefauna 3) bird surveys, 4) photo detection, and 5) casualobserations. The distribution of plots across habitat types and forest types is shown in table 1.

Table 1. Number of plots by habitat and forest type.

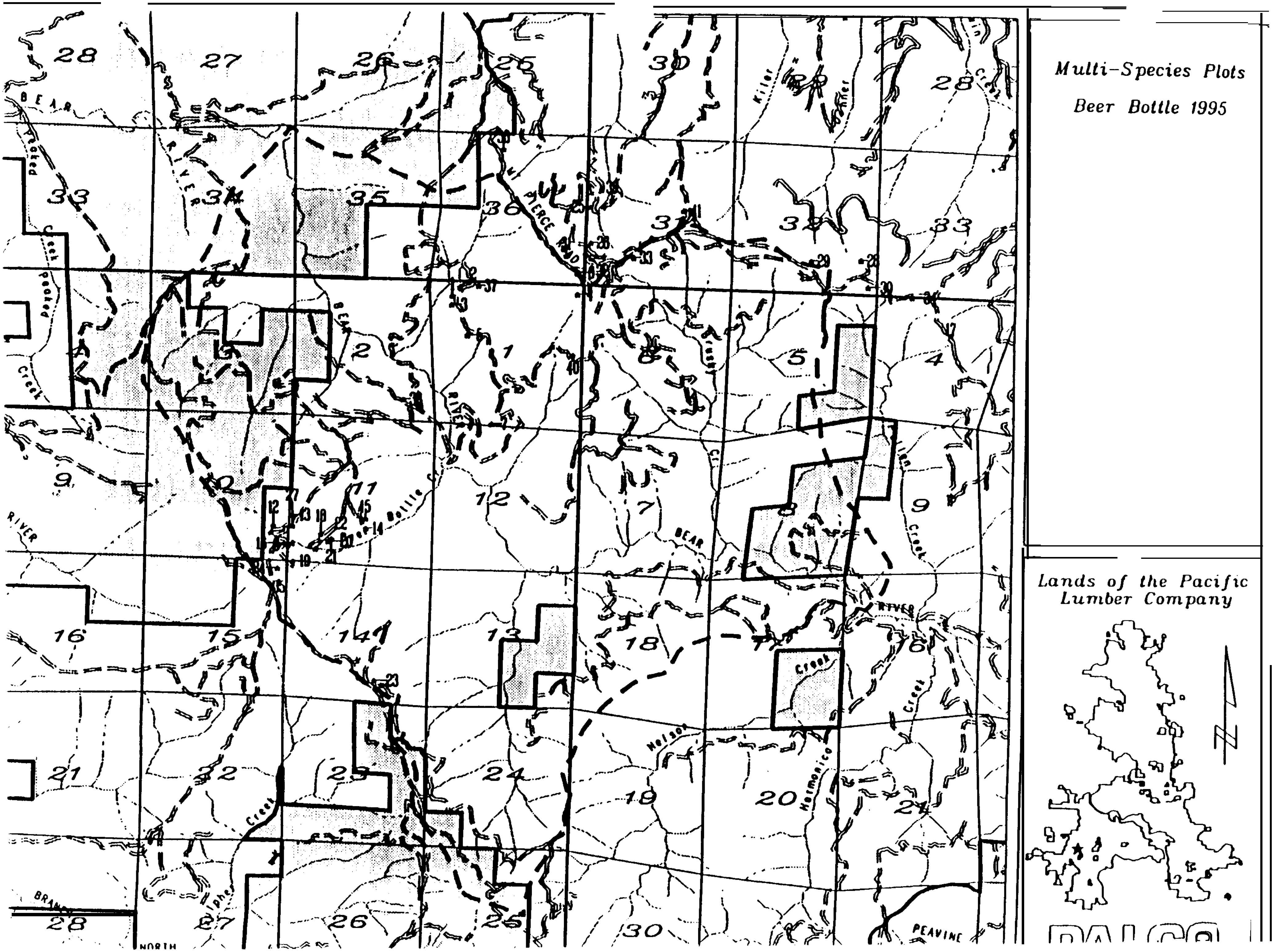
Habitat Type	Redwood Forest	Douglas-Fir Forest	Total
Perennial Grassland		3	3
Forest Opening		1	1
Young Forest	15	8	23
Mid-Successional	33	10	43
Late Seral	10	6	16
Old-Growth	19	4	23
Total	77	32	109

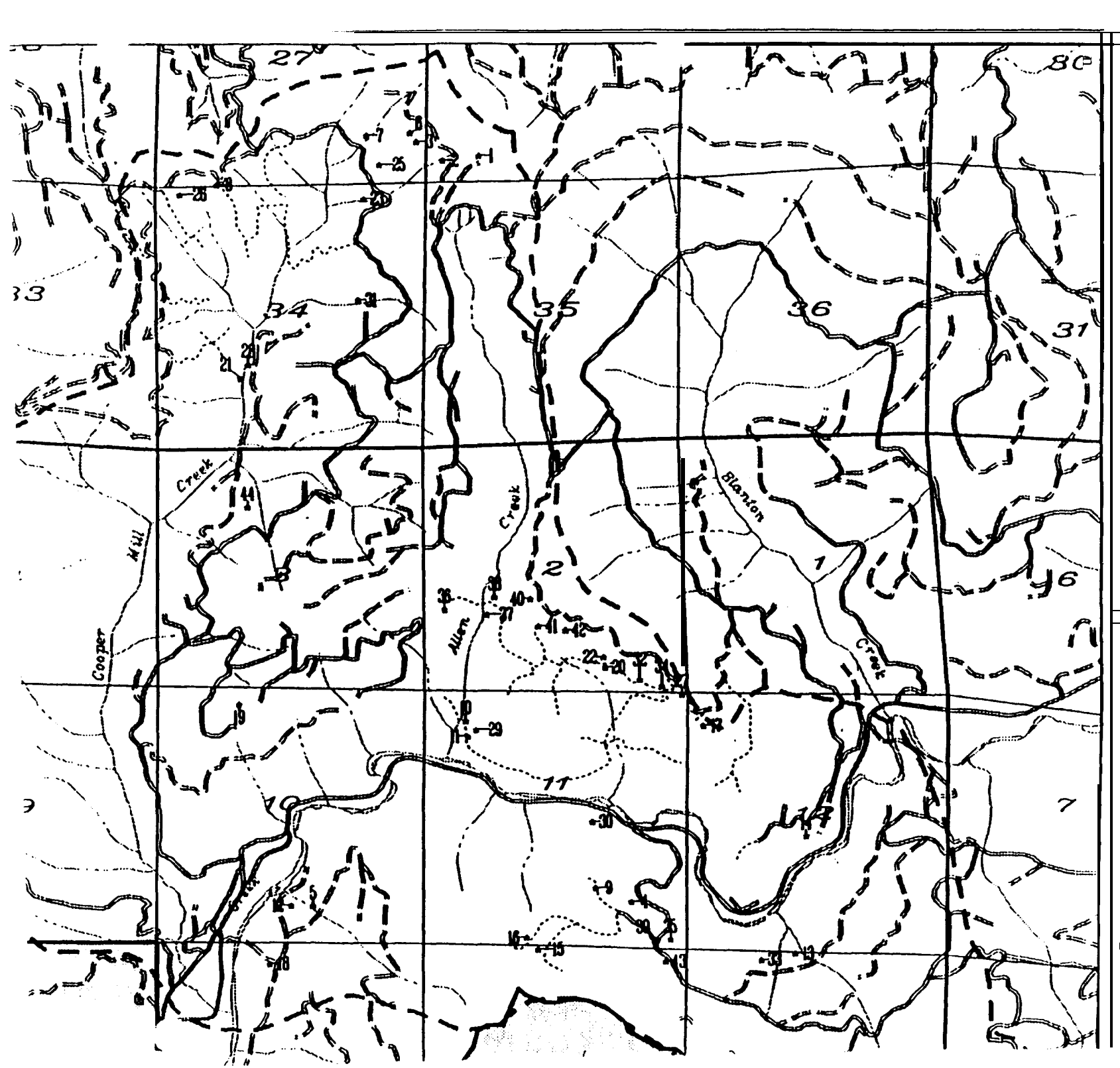


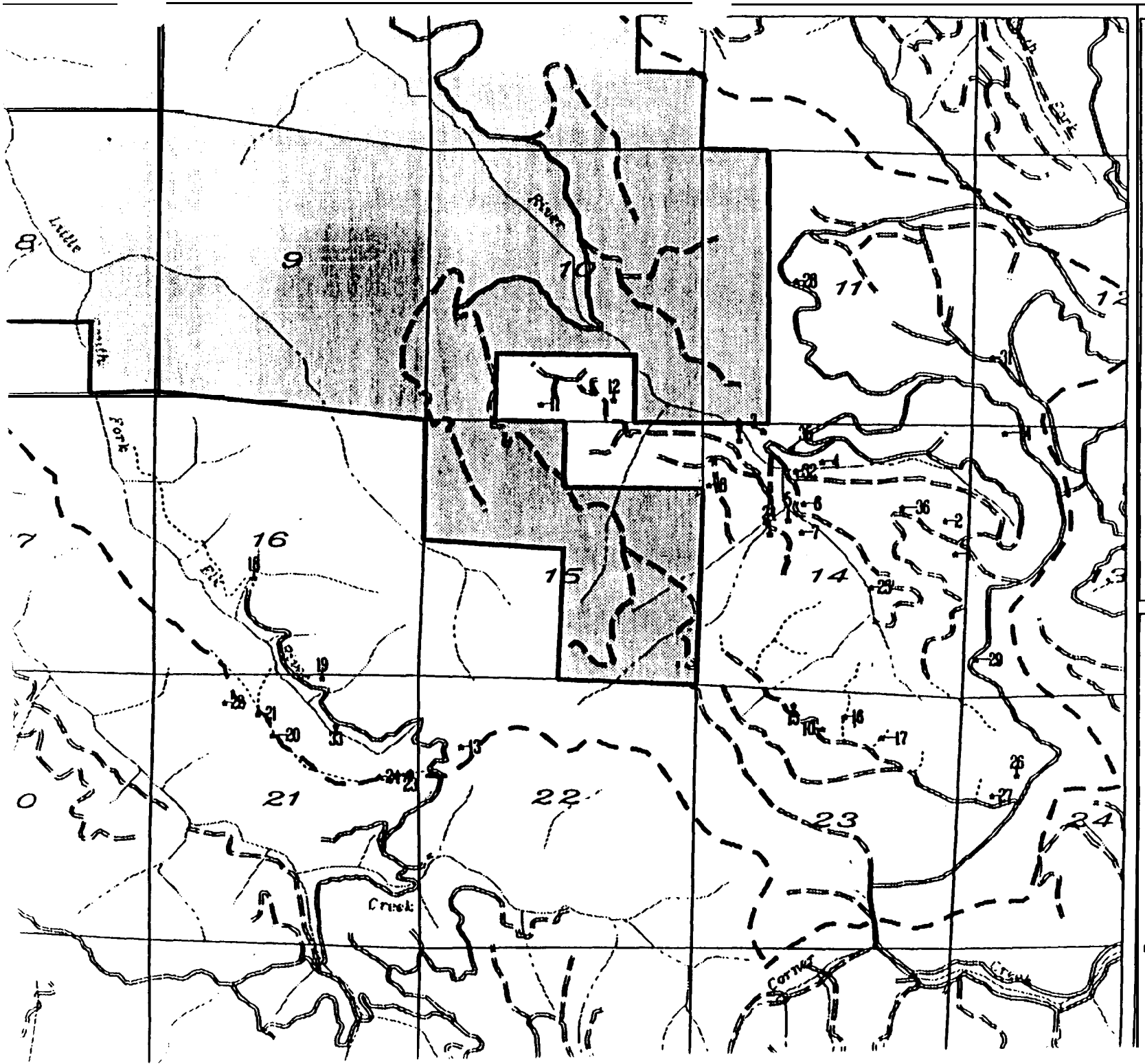
Map and Analysis by Cliff Kennedy - 05/08/96 /usr3/ck/wildplots/mswater.ptl

Multi-Species Plots

Beer Bottle 1995




Multi-Species Plots
Camp 1995
Scale 2" = 1 mile
Lands of the Pacific Lumber Company
Cooper
Mill
Creek
Allen
Creek
Blanton
Creek
27
34
35
36
31
1
2
11
7
N



Multi-Species Plots

Elkhead 1995

Scale 2" = 1 mile

Lands of the Pacific Lumber Company

Plot Selection

30-meter radius plots were randomly selected within the three watersheds. Plot locations were selected using a method known as Simple Latin Square Selection + 1 (SLSS+ 1) as described by Munholland and Borkowski (in press). All available habitat types were sampled, with particular emphasis place on young forests, late seral, and old-growth habitat types. Distance from roads, soil type, and elevation were also used as criteria for plot selection (see appendix **A** for further discussion of plot selection).

Plot Layout

Plots selected through the SLSS+ 1 process were established in the field using the following procedures:

1) A reference point indicated on the plot map was first located in the field. This was usually a road intersection or stream crossing. From this point the surveyor traveled a predetermined distance as measured on a map to the edge of the quadrat

2) Once the reference point was established the surveyor selected a random number between 1 and 10 from a random number table. This number represented the distance in chains (1 chain = 66') to the starting point.

3) From the starting point the surveyor selected an angle and distance from a random number table to determine the placement of the plot center. The distance traveled to plot center tied betwen 0 and 400 feet. If the angle or the distance did not land in the identified stand, then another would be selected from the list This process continued until the plot center could be placed within the stand boundaries.

4) The plot center was marked with an orange plot stake and it's outer boundaries flagged. All plot centers were mapped using a global position system. Plot locations are shown in Figures 2-4.

Pit-trap Location Selection

To ensure valid statistical inference, the traps were randomly placed within the plot as follows. The 30-meter radius plot was first partitioned by placing nine concentric rings of equal area about the center of the plot. The plot was also partitioned into 9 equal wedges or pie slices, each representing a 40 degree slice. These two partitions created 81 potential cells (Figure 5) of equal area (.6987 acres) from which the pit trap locations were selected using SLSS+l sampling A total of 10 pit-trap locations were selected. Nine trap sites were chosen such that there was one trap per wedge and one trap per ring. The tenth trap site was randomly chosen from the remaining sites. If a pit-trap could not be places in the selected position due to a stump, log, rocks, cliffs, etc., the trap could be offset by 3 feet in a randomly chosen cardinal direction. If the pit-trap could not be placed at any offset location. a new cell was chosen randomly.

Understory Vegetation Transect

The understory vegetation information was gathered from 4 - 30 meter transects running from plot center to the plot boundary. The placement of the first transect was chosen by generating a random azimuth. The other 3 transects were consecutively placed at 90 degree angles from each other.

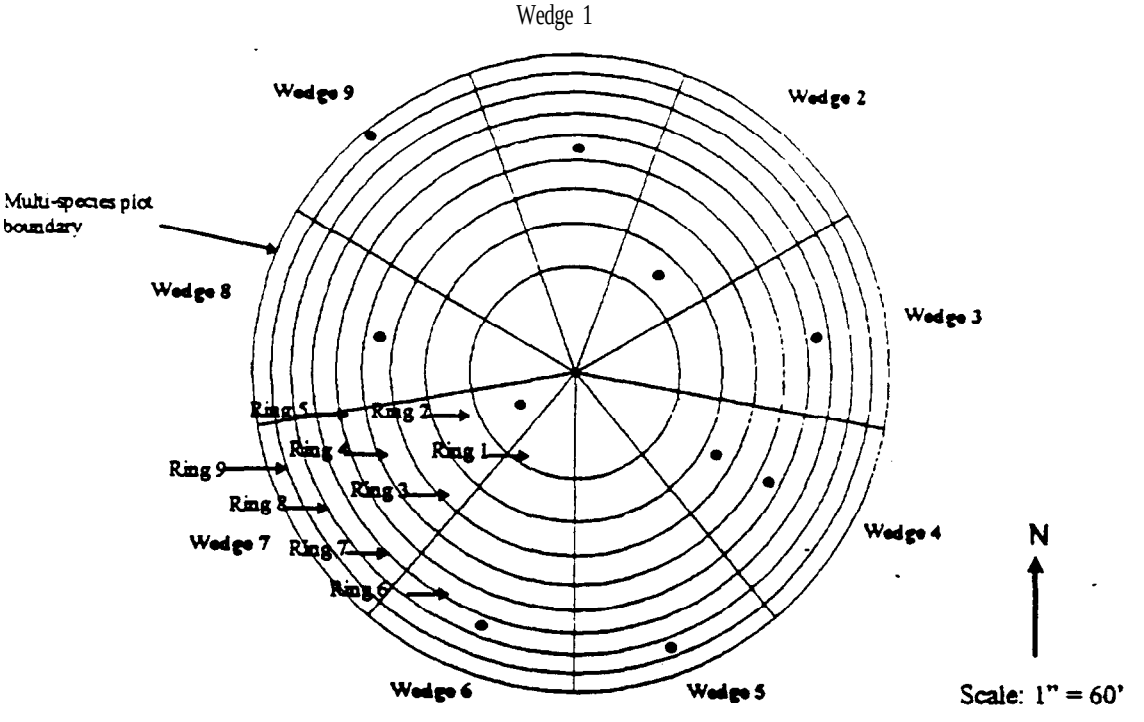
The dominant vegetation covering every 1 meter position along the transects was recorded by genus and species. In the event no vegetation was locates at a position, surveyors noted the structural components present (litter, woody debris, etc.). Downed logs were recorded whenever they crossed a transect For each log, the diameter, length, and condition of the (rotten or sound) was noted. Logs smaller then 6 inches in diameter were recorded as woody debris. At the end of the survey, the plot was systematically searched for the presence of species not detected. Such species were noted separately.

Overstory Vegetation

Overstory information was collected by placing a 3x3 grid of 0.05 acre subplots about plot center (Figure 6). Five of these nine sub-plots were randomly selected for measurement Subplot corners were established 33 feet from the sub-plot center in the four cardinal directions. Sub-plot boundaries were determined using line of site and compass bearings between the comers. All live trees greater than or equal to 6 inches diameter breast height (DBH) were measured on each of the selected 0.05 acre subplots. Spe-

6 inches diameter breast height (DBH) were measured on each of the selected 0.05 acre sub-plots. Species. DBH, number of 16 foot logs, live-crown ratio (LCR) and nest structures were noted for all sub-

Figure 5. Sample layout of 10 Pit-traps



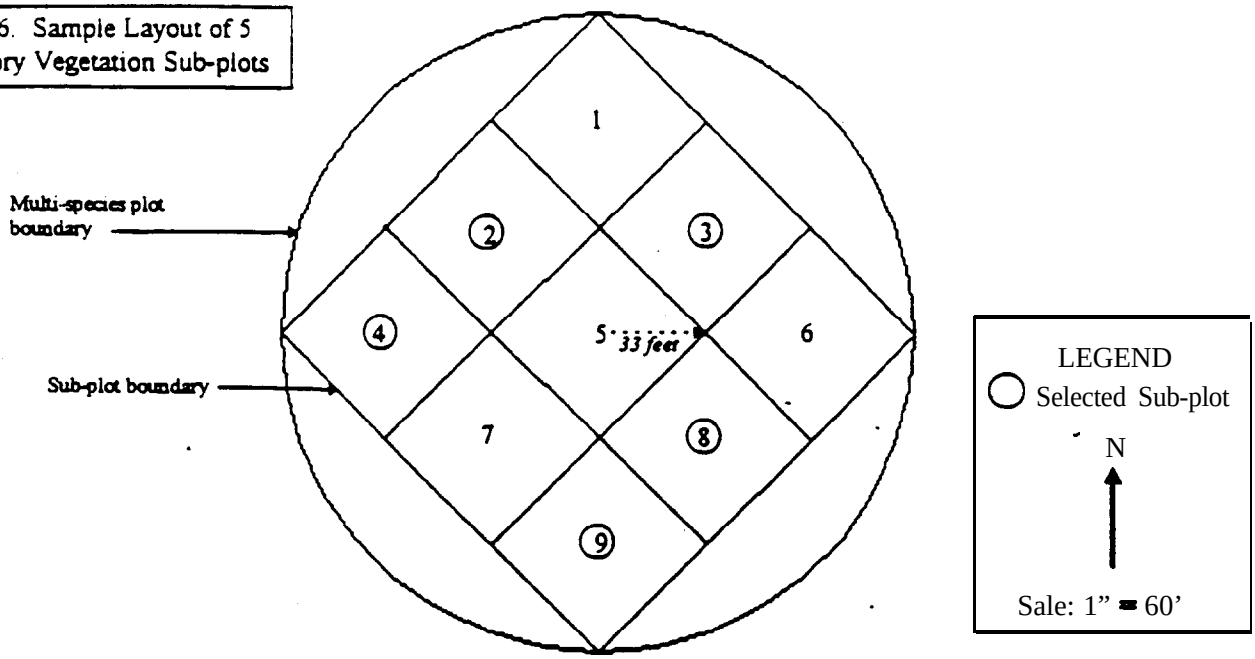
Trap Number	Wedge	Ring	Azimuth (Degrees)	Distance from plot center (ft)
1	1	5	0	69.5
2	2	2	40	39.6
3	3	6	80	76.9
4	4	3	120	51.6
5	5	8	160	89.8
6	6	7	200	83.6
7	7	1	240	16.4
8	8	4	280	61.2
9	9	9	320	95.6
10	4	5	120	69.5

plots except the third one chosen. Data recorded on the third randomly selected subplot included the above as well as total height. Total height in ten foot increments was also recorded for any hardwood species. At the subplot center, canopy closure was determined in the four cardinal directions using a spherical densiometer.

A 1/100th acre circular plot was positioned at the center of each of the 5 selected subplots. Measurements on these 1/100th acre plots included species, DBH, height and LCR of all trees less then 6 inches DBH.

Plots were classified into WHR habitat types using SWHR5. bas algorithm developed by Scott Holmen at Vestra Resources. This program determines WHR habitat from the tree lists associated with the major stand types in which the plots fell. The major stand type data was augmented with small tree (<8" DBH), hardwood and snag components from the overstory plot data Plots were classified into seral stages using a crosswalk between WHR and seral stage developed by Henry Alden. Sal Chinnici and Ray Miller of Pacific Lumber Company. This crosswalk is provided in appendix B.

Figure 6. Sample Layout of 5 Overstory Vegetation Sub-plots



Avian Inventories

Bird data was collected using an area-search method (Ralph 1993). Each plot received three 20-minute visits, spaced at least one week apart during the months of May and June. The timing of the 20-minute periods varied between one-half hour after official sunrise and 10:00 AM. In an effort to minimize potential observer bias, a different observer was assigned to each sampling period and sampling times were staggered.

During each visit the start and finish times were recorded as was the weather, wind speed and temperature. For each detection within the plot boundary the following data were recorded species, distance from plot center, and type of detection (e.g audio or visual). Birds observed flying through or above the plot. but never perching inside the plot boundaries were recorded as casual observations.

All nests located during the survey period or through additional visits to the plot were mapped on the reverse side of the survey sheet Birds detected outside the plot boundary were recorded at the bottom of the survey sheet. Other vertebratres observed were recorded at the bottom of the survey sheet

Herpetofauna Inventories

Two methods were used to sample for the presence of herpetofauna: pit-fall traps (Barrett 1982, McComb 1991) and time-constrained searches (modified from Welsh 1986). Pit-fall traps will be discussed in more detail in the small mammal section.

Each plot received 2 one-hour time-constrained searches. The first search took place in April and May while the second search took place in August. The search time was limited to the searching as opposed to the time required for species identification. During the searches, all substrate that could be used by reptiles and/or amphibians, such as decomposed logs, woody debris, rocks, etc., were carefully searched by turning over loose material and raking the duff and upper soil layer.

Small Mammals

Data on small mammals was collected through the use of pit-fall traps and incidental sightings. Pit-fall traps are approximately 8" in diameter by 14" deep, with an opposing 1" inner lip. Ten traps were randomly placed within the plot boundary.

Trapping took place during three separate periods spread three to four weeks apart, between the months of June and August. Each trapping period consisted of ten traps being run for four consecutive nights. Traps were filled with approximately six inches of water during the third trap period to act as a drown trap (McComb 1991). Traps were turned upside down when not being operated.

Ungulates

Deer and Elk presence was determined through recording pellet groups during the vegetation survey. Additional signs of presence such as beds, tracks and scrapes were recorded.

Carnivores

Carnivore presence was detected through the use of a Trailmaster camera Placement of the camera varied from plot to plot depending upon topography and vegetation Deer meat wrapped in chicken wire was used as an attractant. The bait and motion sensors were placed at or near ground level.

The cameras were operated for ten consecutive nights, and were checked and rebaited every three to four days depending upon the level of activity. Twenty-four exposure color film was used and the detection delay was set at 5 minutes. Five cameras were operating in each watershed at all times.

Results and Discussion

Analysis of plant and animal information was conducted on data from the structured survey methods. Casual observations were not included (except in species presence list) due to variability in observer's reporting diligence. Data was compiled and analyzed in Microsoft's Access and Excel and Statsoft's Statistica. This paper discusses the results with respect to WHR and seral stage classifications, species presence, sample size, biodiversity, species guilds, seral stage dependency, and validation of the California WHR program.

WHR and Seral Stage Classification

A comparison of WHR and seral stage using plot data versus using stand data is presented in Appendix B. The plot data represents the characteristics of the vegetation on the plot while the stand data represents an average condition over an entire stand type. Wildlife and habitat associations are more dependent on the mosaic of landscape types than localized conditions. The stand level information is the most appropriate data source for analysis at the landscape level. The inherent variability of habitats within a stand is demonstrated in table 2 below which show the plot level WHRs associated with each stand level WHR. This table is a summary of appendix B.

Table 2. WHR classification at the stand and plot levels.

Stand WHR	Plot WHRs	Number I of Plots
PGS2_D	PGS2_D	3
MCP1_M	MCP1_M	1
MHW4BM	MHC5_P	1
MHW4BD	MHW4AD, MHW4BD, DFR5_M	3
MHC2_S	MCP1_M(4), MHC2_S, RDW2_P	6
MHC2_M	MCP1_M, MHW2_P, MHC2_M, MHC2_D, MHC4AS	5
MHC3_S	MCP1_M(2), MHW3_S, MHW3_S, MHC2_P, DFR4AS	6
MHC3_D	MHC3_D	1
MHC4AM	MHC4BD, DFR5_M	2

MHC4BS	MHC3_P, DFR4BP	2
MHC4BM	MHC4BM, MHC4BD, DFR4_S	3
MHC4BD	MHW4BD, MHC4BD, DFR5_M	3
MHC6_D	MHC4BD	1
DFR5_M	DFR5_M(3), DFR5_D(3)	6
RDW2_M	DFR2_P(2), DFR2_M, MHC2_M(2)	5
RDW4AP	RDW4AP	1
RDW4AM	DFR4AM, RDW5_D, RDW6_D	3
RDW4AD	RDW4AM	1
RDW4BS	DFR2_S, DFR2_D, RDW2_M, RDW4AP, RDW5_P, RDW5_M, RDW5_D(2)	8
RDW4BM	MHC6_D, DFR4AM, DFR4AD, RDW4AD, RDW4BM, RDW6_D	9
RDW5_P	MCP1_M, MHW2_P, RDW3_D, RDW4BS, RDW4BP, RDW4BM(2), RDW5_S(3), RDW5_M	11
RDW5_M	DFR4BM	1
RDW5_D	DFR5_M, DFR5_D(2), RDW5_P, RDW5_M(3), RDW5_D(12)	19
RDW6_D	DFR4BM, RDW4AP, RDW4BP, RDWSP, RDW5_D, RDW6_D(3)	8

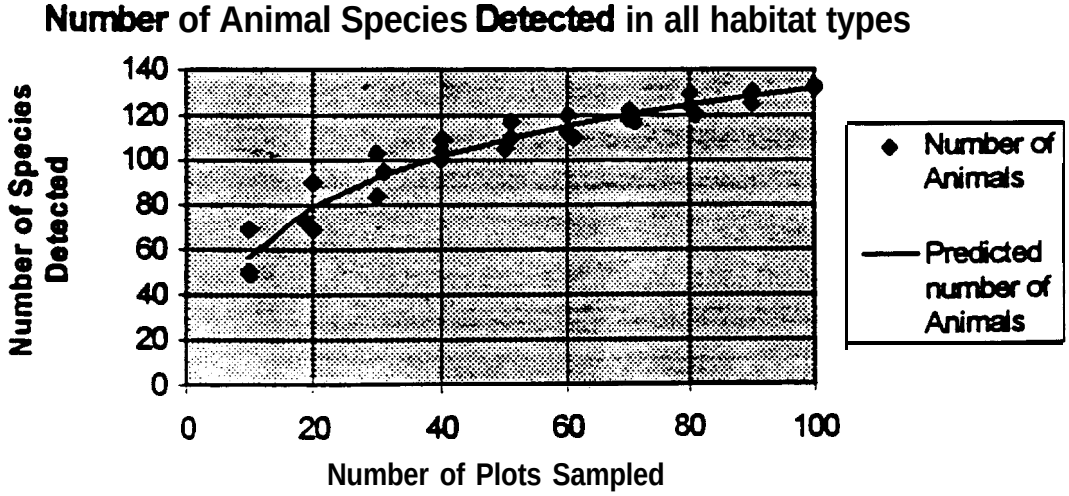
Species Presence

Appendix C provides a list of plants and animals detected on Pacific Lumber Company lands. This list includes the casual observations. A total of 74 birds, 11 amphibians, 8 reptiles, 43 mammals and 102 plants were found. __ of the species detected were rare, endangered, threatened, or otherwise sensitive.

Sample Size

Number of species detected varied according the sample size. This effect was demonstrated by summing the number of animal species detected from 3 groups of randomly selected plots for a given sample size. This was conduced for sample sizes ranging from 10 to 100 plots. Figure 7 depicts the relationship between number of species detected and sample size.

Figure 7. Relationship between sample size and number of animals detected.



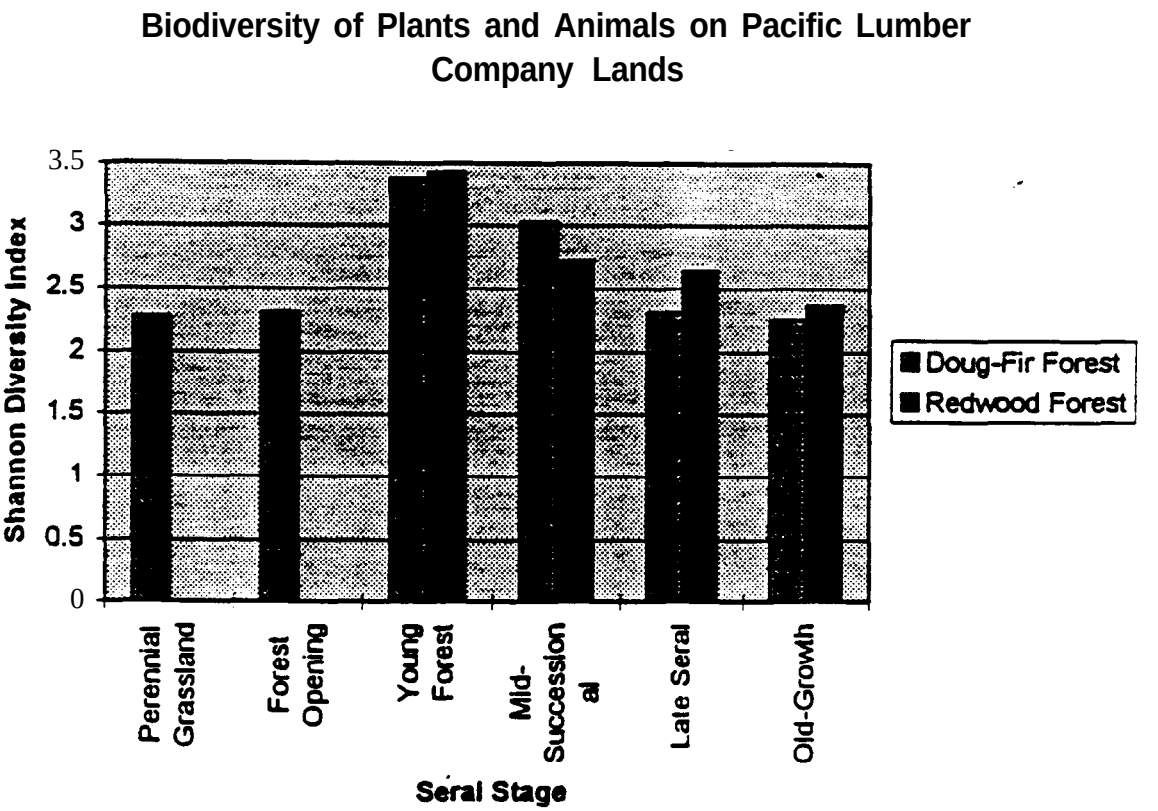
Animal species detected increased with sample size when considering the 2 zones and 5 habitat types combined. Within habitat variability will be less than between habitats, thus requiring fewer samples per

habitat to account for most species. A similar study with more than 600 plots in 5 habitat types in the Sierra Nevada indicated a minimum of 40-50 plots per habitat to ensure detection of most of the associated species (Annand & Hiss, 1992).

Biodiversity

Biodiversity is a measure of species richness and frequency. It has been cited as an important objective in ecosystem management One quantitative measure of biodiversity is the Shannon index. Figure 8 displays the diversity indices for the 6 major habitat types and 2 forest zones. The diversity index was calculated based on species richness and frequency for both plants and animals. While the two forest zones provide habitat for a unique array of species. the change in biodiversity from young habitat types to older ones is similar. The initial increase, then gradual decline in diversity from early to late seral stages is typical of mesic forest types (Smith 1980).

Figure 8. Biodiversity of plants and animals across 6 habitat types and 2 forest zones.



The Shannon diversity index is moderately dependent on sample size because species richness and frequency are dependent on sample size (Magurran 1988). A larger sample size may result in a more accurate absolute measure of diversity, however relative diversity among habitat types will remain about the same. Other indicts less dependent on sample size produce the same relative rankings.

Species Guilds

A species guild (of plants and animals) is a group of species which responds similarly across the spectrum of seral stages. Guilds are determined using cluster analysis based on relative frequency. All animal species were divided into 7 guilds for each of the forest zones as shown in appendix D. The Young/Old guild contains species which have a high relative frequency in the young and old-growth seral stages. The Mid/Late guild contains species which have a high relative frequency in the mid and late seral stages. The Youngs, Mids, Lates and Olds all have high frequency in their respective seral stages. Finally. the

Generalists occur at relatively high frequencies across all seral stages. Appendix D provides a list animal and plant species within each guild for both forest tones.

The number of plants and animals within each guild provides a generalized assessment of guild dynamics. Tables 3 and 4 display the number of birds, amphibians, reptiles, mammals and plants within each guild for each forest type: Some general relationships are of note: 1) decline in overall numbers of plants and animals successive guilds; 2) decline in numbers of birds, reptiles, mammals and plants with successive guilds; 3) increase in numbers of amphibians associated with older guilds; 4) increase in evenness with successive guilds. Bird and mammal diversity appear to be directly correlated to changes in plant diversity. Reptile and amphibian diversity is more closely related to microclimatic conditions. Amphibians favor the cool moist conditions of mature forests while reptiles favor drier, warmer conditions of early seral stages. Distribution and diversity of reptiles and amphibians across the United States followed similar patterns (Kiester, 1971).

Table 3. Number of birds, amphibians. reptiles, mammals and plants within each guild in the Redwood Forest Zone.

Redwood Forests						
Guild	# of Birds	# of Amphibians	# of Reptiles	# of Mammals	# of Plants	Total
Young/Old			1			1
Mid/Late	3					3
Young	29	1	4	10	24	68
Mid	9	1	1	6	13	30
Late	5	2		3	11	21
Old	3	4		5	7	19
General	1			4	10	15
Total	50	8	6	28	65	157

Table 4. Number of birds, amphibians, reptiles, mammals and plants within each guild in the Doug-Fir Forest Zone.

Doug-Fir Forests						
Guild	# of Birds	# of Amphibians	# of Reptiles	# of Mammals	# of Plants	Total
Young/Old	2	2				4
Mid/Late		1	1			2
Young	27		4	14	35	80
Mid	11	1	1	5	16	34
Late	11			6	7	24
Old	5		1	2	3	11
General	2			1	8	11
Total	58	4	7	28	69	166

Seral Stage Dependency

While most plants and animals were detected in several seral stages, a few were detected only in one seral stage. Species which only occur in one seral type could be dependent on a particular component of **a** seral stage. An obvious example is the marbled murrellet's affinity for trees with large limbs. The degree of dependency is difficult to determine due to several factors including species abundance, species detecta-

bility, and sample size. A small sample size could result in an erroneous determination of dependency especially for uncommon and/or difficult to detect species. With these limitations in mind Appendix E provides a lists of species for each forest zone which were detected in only one seral stage. Most of these species probably occur in more than one seral stage, however sampling intensity was insuffient to provide an accurate assessment. While it may be inaccurate to portray any of these species as seral dependent, it is interesting to note that there are more species listed for young and mid-successional than late seral and old-growth.

Validation of California Wildlife Habitat Relationships Model

Prediction of species occurrence using the California Wildlife Habitat Relationships Model (Timossi et. al. 1994) was compared to species detected in this study. WHR of the study plots was determined using stand level information from the major stand type in which each plot lay. Plots in similar stand types and WHR types were combined to create species lists. Appendix F indicates species which are common to this study and the WHR model (common), species that were detected in this study but not predicted by the model (omission), and species that were predicted but not detected (commission). Predicted species in the commission list were determined using the "high" habitat suitability raring for each WHR type. Table 5 provides a summary of the validation results

Table 5. Summary of validations results comparing predicted species using WHR with actual detected species from plot data.

WHR	# of plots sampled	# Of Common Species	# of Omissions	# of Commissions
MCP1	1	10	5	17
PGS2D	3	14	2	21
MHW4M	1	8	3	29
MHW 4D	3	22	4	16
MHC2S	6	52	5	21
MHC2M	5	29	2	19
MHC3S	6	53	6	25
MHC3D	1	9	1	20
MHC4S	2	21	2	34
MHC4M	5	42	5	21
MHC4D	3	30	3	23
MHC6	1	13	0	38
DFR5M	6	43	3	21
RDW2M	5	42	Al	13
RDW4S	8	38	5	13
RDW4P	1	10	0	24
RDW	12	42	1	10
RDW4D	1	14	2	15
RDW5P	11	50	7	11
RDW5M	1	7	0	26
RDW5D	19	41	7	5
RDW6	8	28	7	13
Total	109	618	74	435

Table 5 emphasizes the effect of sample size on validation results. As sample size increases, number of common species and omissions increase while commissions decrease. The most common omissions were California Slender Salamander (7). Redback Vole (5). Swainson's Thrush and Oregon Volt (4). and Common Bushtit and Macgilliway's Warbler (3). A total of 45 species were omitted. The most common commissions were Red-tailed Hawk and Common Raven (15). Golden Eagle (14). Western Wood-Peewee

(13). Red-Breasted Sapsucker (11). Olive-sided Flycatcher and Yellow-Rumped Warbler (10). A total of 98 species were predicted but not detected.

Conclusion

Tremendous effort has been put forth to detect. describe, and delineate the habits and habitats of threatened and endangered species. This study attempts to address a host of species. both plant and animal. which provide the ecological framework for the entire biotic community. While the spotted owl and the marbled murrelet have been touted as indicator species for late successional forests, perhaps a more sound approach to management of forest habitats would include assessment of groups of species or species guilds in all successional stages.

The results of this effort will be used in developing management strategies which provide for the conservation of forest habitats and species on a regional scale. As we refine our techniques, this approach can be a useful monitoring tool to ensure compliance with long-term forest management and habitat conservation plans.

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Multi-Species Plot Information

Plot Number	Average DBH (in)	Trees Per Acre	Basal Area (ft²/ac)	% Basal Area in Redwood	% Basal Area in Doug-fir	% Basal Area in Hdwd	Trees per Ac >24" DBH	% Basal Area in Trees > 24" DBH	Canopy Cover	Snags per Acre	Avg DBH of Snags	Snags per Ac > 24" DBH
CAMP02	15.7	288	93.6	58.97%	23.03%	18.00%	4	58.28%	63.13%	4.29	53.3	2.86
CAMP03	13.2	284	24.5	72.60%	27.40%	0.00%	0	0.00%	37.76%	0.00	0.0	0.00
CAMP04	14.4	232	240.9	71.45%	28.55%	0.00%	0	0.00%	99.58%	12.87	8.0	0.00
CAMP05	23.2	184	133.1	95.80%	0.00%	4.20%	20	83.36%	83.78%	0.00	0.0	0.00
CAMP06	3.0	928	46.9	28.11%	19.26%	52.63%	0	0.00%	50.65%	4.29	20.8	1.43
CAMP07	3.7	376	27.7	18.82%	22.44%	58.74%	0	0.00%	47.01%	0.00	0.0	0.00
CAMP08	15.5	920	282.6	63.64%	6.59%	29.77%	24	45.95%	96.46%	1.43	6.0	0.00
CAMP09	19.8	132	282.9	55.09%	43.15%	1.26%	28	71.13%	97.24%	5.72	30.8	1.43
CAMP10	46.8	244	535.1	98.19%	0.00%	1.81%	16	93.30%	93.81%	0.00	0.0	0.00
CAMP11	33.1	368	534.6	89.09%	7.90%	3.01%	36	85.62%	97.50%	8.58	39.2	4.29
CAMP12	20.3	212	213.8	49.06%	25.56%	25.39%	16	68.36%	93.14%	0.00	0.0	0.00
CAMP13	16.9	192	208.6	46.43%	41.71%	1.68%	12	53.80%	98.44%	14.30	21.4	2.86
CAMP14	12.6	532	126.0	60.65%	13.58%	25.60%	8	31.31%	97.45%	4.29	11.4	0.43
CAMP15	20.6	280	339.0	57.47%	30.80%	0.00%	32	72.96%	97.66%	5.72	21.7	1.43
CAMP16	21.6	124	314.2	54.39%	43.03%	0.44%	16	61.83%	98.80%	1.43	32.0	0.43
CAMP17	38.9	208	736.3	88.69%	10.83%	0.00%	60	92.29%	96.67%	1.43	34.0	1.43
CAMP19	18.4	208	279.1	90.33%	8.19%	1.48%	28	43.09%	79.41%	14.30	6.0	0.00
CAMP20	7.7	664	213.1	83.57%	3.12%	13.31%	8	39.06%	89.76%	1.43	56.0	1.43
CAMP21	15.0	308	166.5	75.54%	15.38%	4.83%	8	41.98%	96.62%	0.00	0.0	0.00
CAMP22	32.8	388	526.6	94.28%	3.68%	0.60%	28	87.13%	98.13%	1.43	50.0	1.43
CAMP23	12.2	424	140.9	30.65%	49.36%	19.99%	0	0.00%	50.29%	1.43	8.9	0.00
CAMP25											6.0	0.00
CAMP26	25.7	632	288.7	68.09%	18.98%	12.93%	20	80.22%	94.38%	2.86	2.2	0.00
CAMP27	20.0	172	163.7	96.15%	2.52%	1.33%	8	51.72%	92.56%	0.00	0.0	0.00
CAMP28	33.0	260	604.4	99.26%	0.00%	0.00%	48	90.49%	98.80%	0.00	0.0	0.00
CAMP29	33.3	196	464.5	96.78%	0.00%	3.22%	36	88.97%	90.74%	0.00	0.0	0.00
CAMP30	19.8	268	318.3	73.56%	24.65%	1.78%	16	64.10%	98.02%	5.72	14.7	0.00
CAMP31	37.4	716	743.5	96.15%	1.20%	2.07%	28	94.26%	92.51%	0.00	0.0	0.00
CAMP32	23.6	228	270.4	90.87%	9.09%	0.00%	24	81.14%	94.12%	0.00	0.0	0.00
CAMP33	18.4	284	273.8	79.82%	6.82%	1.59%	8	55.62%	98.96%	4.29	12.7	0.00
CAMP34	21.3	512	187.6	95.62%	4.33%	0.00%	16	68.04%	91.26%	1.43	18.0	0.00
CAMP35	14.6	632	227.9	43.65%	32.88%	19.04%	0	0.00%	98.39%	0.00	0.0	0.00
CAMP36	49.7	108	647.8	100.00%	0.00%	0.00%	36	97.18%	98.13%	2.86	75.2	2.86

Multi-Species Plot information

Plot Number	Average DBH (in)	Trees Per Acre	Basal Area (ft2/ac)	% Basal Area in Redwood	% Basal Area in Doug-fir	% Basal Area in Hdwd	Trees per Ac >24" DBH	% Basal Area in Trees > 24" DBH	Canopy Cover	Snags per Acre	Avg DBH of Snags	Snags per Ac > 24" DBH
BEER01	20.4	144	147.3	0.00%	80.53%	7.53%	8	75.97%	91.73%	0.00	0.0	0.00
BEER02	10.9	132	45.5	0.00%	47.19%	52.81%	0	0.00%	78.78%	1.43	10.0	0.00
BEER03	20.6	88	204.3	0.00%	76.16%	23.84%	20	50.79%	96.15%	1.43	16.0	0.00
BEER04	38.7	76	285.0	0.00%	99.96%	0.04%	36	99.63%	90.07%	0.00	0.0	0.00
BEER05	20.8	156	182.0	0.00%	80.87%	19.13%	12	62.00%	96.57%	10.01	9.9	0.00
BEER06	34.2	200	256.8	0.00%	99.96%	0.04%	28	94.34%	58.82%	0.00	0.0	0.00
BEER07	19.5	176	364.4	0.00%	76.55%	23.45%	32	60.00%	98.34%	5.72	26.9	1.43
BEER08	20.9	320	248.5	0.00%	10.15%	89.85%	24	50.08%	80.66%	2.86	15.0	0.00
BEER12	29.5	196	214.0	0.00%	89.78%	10.22%	8	83.82%	56.74%	1.43	14.0	0.00
BEER13	28.3	140	524.9	0.00%	87.73%	12.27%	52	81.73%	95.94%	2.86	15.0	0.00
BEER14	23.9	124	262.3	0.00%	79.26%	20.74%	16	67.12%	87.52%	4.29	14.3	0.00
BEER15	5.5	32	5.3	0.00%	0.00%	100.00%	0	0.0 0%	9.52%	0.00	0.0	0.00
BEER16	15.5	420	297.4	0.00%	5.75%	94.25%	16	25.74%	97.36%	2.86	33.0	2.86
BEER17	29.8	388	338.1	0.00%	89.81%	10.19%	40	84.43%	75.82%	1.43	40.0	1.43
BEER18	6.3	24	5.3	0.00%	0.00%	100.00%	0	0.00%	15.14%	2.86	18.1	0.00
BEER19	10.8	16	10.2	0.00%	0.00%	100.00%	0	0.00%	24.76%	0.00	0.0	0.00
BEER20	5.8	132	23.9	0.00%	4.20%	95.80%	0	0.00%	16.54%	0.00	0.0	0.00
BEER21	23.7	208	340.3	0.00%	56.42%	43.58%	44	84.36%	89.44%	0.00	0.0	0.00
BEER22	27.3	112	211.3	0.00%	72.47%	27.53%	12	80.51%	72.39%	0.00	0.0	0.00
BEER23	30.0	92	451.7	0.00%	100.00%	0.00%	60	82.40%	100.00%	18.59	11.6	0.00
BEER24	2.3	140	4.1	0.00%	100.00%	0.00%	0	0.00%	16.18%	2.86	14.1	0.00
BEER25	3.9	548	45.4	0.00%	46.03%	53.97%	0	0.00%	97.24%	1.43	35.0	1.43
BEER26	7.4	492	147.9	0.00%	64.65%	35.28%	4	26.01%	98.13%	0.00	0.0	0.00
BEER27	16.0	36	50.0	0.00%	91.45%	8.55%	8	58.99%	55.28%	0.00	0.0	0.00
BEER28	30.4	76	382.7	0.00%	100.00%	0.00%	48	84.74%	95.58%	7.15	13.1	0.00
BEER29	40.6	76	682.6	0.00%	100.00%	0.00%	68	98.56%	97.66%	0.00	0.0	0.00
BEER30	32.8	100	353.1	0.00%	99.11%	0.89%	36	89.73%	85.86%	0.00	0.0	0.00
BEER31	50.4	32	443.3	0.00%	99.69%	0.31%	24	97.30%	77.38%	0.00	0.0	0.00
BEER32	5.5	180	29.8	0.00%	53.63%	46.37%	0	0.00%	31.26%	0.00	0.0	0.00
BEER33	0.0	0	0.0	0.00%	0.00%1	0.00%	0	0.00%	0.00%	0.00	0.0	0.00
BEER34	0.0	0	0.0	0.00%				0.00%	0.00%	0.00	0.0	
BEER35	0.0	0	0.0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00	0.0	0.00
CAMP01	3.3	724	43.7	55.94%	3.24%	40.82%	0	0.00%	35.88%	0.00	0.0	0.00

Multi-Species Plot Information

Plot Number	Average DBH (in)	Trees Per Acre	Basal Area (ft2/ac)	% Basal Area in Redwood	% Basal Area in Doug-fir	% Basal Area in Hdwd	Trees per Ac >24" DBH	% Basal Area in Trees > 24" DBH	Canopy Cover	Snags per Acre	Avg DBH of Snags	Snags per Ac > 24" DBH
CAMP37	45.7	352	828.4	80.18%	18.84%	0.34%	32	95.13%	90.59%	2.86	29.7	1.43
CAMP38	37.3	344	800.7	94.88%	4.00%	0.67%	48	92.04%	95.42%	0.00	0.0	0.00
CAMP39	15.3	252	222.6	21.89%	60.77%	0.64%	12	42.58%	96.98%	0.00	0.0	0.00
CAMP40	13.7	316	185.5	84.89%	11.95%	1.69%	4	13.59%	99.27%	0.00	0.0	0.00
CAMP41	17.6	204	212.6	76.07%	21.88%	2.05%	16	58.85%	99.32%	1.43	30.0	1.43
CAMP42	14.9	556	347.3	65.90%	31.70%	0.79%	28	49.55%	95.58%	12.87	20.2	1.43
CAMP43	15.4	436	163.1	87.56%	2.54%	1.67%	0	0.00%	92.67%	2.86	22.8	1.43
CAMP44	12.6	248	150.2	5.24%	17.72%	13.01%	4	11.39%	88.61%	5.72	4.5	0.00
ELK01	3.1	528	27.1	84.69%	6.45%	8.86%	4	54.47%	32.24%	0.00	0.0	0.00
ELK02	20.0	124	9.4	100.00%	0.00%	0.00%	0	0.00%	4.94%	0.00	0.0	0.00
ELK03	13.8	156	18.3	35.24%	3.57%	61.19%	0	0.00%	28.60%	0.00	0.0	0.00
ELK04	35.4	220	552.3	83.88%	12.72%	3.39%	20	91.39%	97.97%	0.00	0.0	0.00
ELK05	20.3	220	48.7	93.51%	0.90%	5.60%	4	78.96%	87.83%	0.00	0.0	0.00
ELK06	25.9	136	133.6	98.53%	1.47%	0.00%	8	71.59%	38.28%	0.00	0.0	0.00
ELK07	24.4	112	110.4	99.11%	0.00%	0.89%	16	80.73%	95.22%	4.29	64.41	4.291
ELK08	42.4	60	199.4	99.95%	0.05%	0.00%	8	92.49%	66.51%	0.00	0.0	0.00
ELK09	2.7	344	13.2	0.00%	0.00%	100.00%	0	0.00%	88.66%	1.43	16.0	0.00
ELK10	46.2	268	563.3	98.53%	0.00%	1.47%	24	95.30%	90.64%	4.29	58.7	1.43
ELK11	19.1	192	65.7	96.02%	0.00%	3.98%	8	65.45%	49.82%	2.86	66.3	2.86
ELK12	46.5	200	479.2	99.04%	0.00%	0.80%	20	94.51%	71.61%	10.01	66.1	8.58
ELK13	19.9	336	174.2	47.99%	33.11%	18.90%	16	68.18%	98.70%	1.43	10.0	0.00
ELK14	3.8	136	10.7	54.08%	13.06%	21.43%	0	0.00%	45.76%	0.00	0.0	0.00
ELK15	68.7	336	941.7	97.62%	0.45%	1.93%	24	96.29%	96.46%	1.43	140.0	1.43
ELK16	48.9	328	898.3	78.98%	19.59%	1.43%	24	92.35%	97.14%	2.86	60.4	2.86
ELK17	42.1	200	392.3	95.86%	3.25%	0.89%	16	92.50%	97.56%	2.86	71.1	2.86
ELK18	76.2	300	1273.1	99.57%	0.00%	0.43%	32	98.41%	98.49%	1.43	60.0	1.43
ELK19	29.1	64	295.0	37.30%	59.95%	2.75%	32	91.93%	92.15%	8.58	19.8	1.43
ELK20	44.2	148	518.1	68.37%	29.39%	2.23%	36	96.69%	98.54%	0.00	0.0	0.00
ELK21	46.4	144	755.9	51.19%	47.92%	0.89%	32	95.82%	95.53%	7.15	37.4	4.29
ELK22	44.7	248	665.f	55.38%	42.13%	2.48%	36	94.16%	86.27%	1.43	40.0	1.43
ELK23	36.9	352	548.6	89.20%	10.12%	0.67%	40	86.88%	95.53%	4.29	27.4	2.86
ELK24	48.1	204	809.7	80.53%	17.63%	1.83%	44	97.29%	97.45%	1.43	36.0	1.43
ELK25	55.9	216	622.1	98.68%	0.00%	1.32%	16	96.24%	94.18%	1.43	60.0	1.43

Multi-Species Plot Information

Plot Number	Average DBH (in)	Trees Per Acre	Basal Area (ft2/ac)	% Basal Area in Redwood	% Basal Area in Doug-fir	% Basal Area in Hdwd	Trees per Ac >24" DBH	% Basal Area in Trees > 24" DBH	Canopy Cover	Snags per Acre	Avg DBH of Snags	Snags per Ac > 24" DBH
ELK26	4.8	1152	147.8	85.68%	9.67%	4.65%	12	78.59%	88.04%	0.00	0.0	0.00
ELK27	1.7	860	13.4	0.00%	79.67%	20.33%	0	0.00%	42.33%	0.00	0.0	0.00
ELK28	3.7	432	31.5	33.82%	36.66%	18.71%	0	0.00%	75.87%	0.00	0.0	0.00
ELK29	3.8	760	60.1	45.74%	15.05%	39.21%	0	0.00%	71.61%	0.00	0.0	0.00
ELK31	3.2	276	15.9	39.34%	60.66%	0.00%	0	0.00%	30.53%	0.00	0.0	0.00
ELK32	4.0	764	67.8	82.81%	10.43%	6.76%	4	21.76%	95.37%	0.00	0.0	0.00
ELK33	85.2	52	1268.2	98.89%	0.99%	0.12%	20	98.06%	67.66%	1.43	60.0	1.43
ELK34	41.9	148	269.6	79.57%	20.43%	0.00%	12	89.01%	74.68%	5.72	83.4	4.29
ELK35	2.4	168	5.5	76.00%	24.00%	0.00%	0	0.00%	54.03%	0.00	0.0	0.00
ELK36	0.0	0	0.0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00	0.0	0.00

Plot	Soil Type	Site Index	Elev 1644	Percent Slope (%)	Aspect (degrees)	Distance to nearest road (ft)	Distance to nearest water (ft)
BEER01	Hugo	2		61	294	152	341
BEER02	Hugo	2	1410	35	258	118	147
BEER03	Hugo	2	1706	49	261	161	577
BEER04	Wilder	3	3118	15	310	345	611
BEER05	Hugo	2	1709	23	210	168	499
BEER06	Wilder	31	3035	23	34	87	1402
BEER07	Hugo	2	1680	67	275	381	1467
BEER08	Hugo	2	2595	63	70	129	220
BEER12	Wilder	3	2854	36	125	179	309
BEER13	Wilder	3	2724	33	111	199	419
BEER14	Wilder	3	1787	56	120	169	495
BEER15	Hugo	2	1895	56	120	163	411
BEER16	Hugo	2	2546	32	140	215	106
BEER17	Wilder	3	2558	10	271	122	378
BEER18	Hugo	2	2304	45	130	105	135
BEER19	Hugo	2	2597	45	57	187	666
BEER20	Wilder	3	2129	45	131	268	295
BEER21	Wilder	3	2124	41	135	307	379
BEER22	Wilder	3	2240	48	85	215	26
BEER23	Hugo	2	3056	27	203	234	1457
BEER24	Wilder	3	2866	43	90	284	1104
BEER25	Hugo	2	2170	17	71	127	321
BEER26	Hugo	2	2407	70	10	192	528
BEER27	Wilder	3	2692	26	103	21	387
BEER28	Melborne	2	2938	71	318	337	604
BEER29	Wilder	3	2843	41	323	294	525
BEER30	Hugo	2	2839	31	183	203	757
BEER31	Hugo	2	2853	48	29	270	1549
BEER32	Hugo	2	2668	39	5	169	926
BEER33	Wilder	3	2721	30	76	116	677
BEER34	Wilder	3	2674	34	339	91	775
BEER35	Wilder	3	2881	35	74	248	749
CAMP01	Larabee	2	2058	37	234	157	526
CAMP02	Larabee	2	1852	31	232	200	27
CAMP03	Larabee	2	1821	28	252	392	544
CAMP04	Hugo	2	868	19	80	188	1388
CAMP05	Hugo	2	297	29	273	192	53
CAMP06	Larabee	2	1803	22	257	286	598
CAMP07	Larabee	2	1654	31	2301	258	74
CAMP08	Larabee	2	1506	39	161	95	478
CAMP09	Hugo	2	1064	26	94	673	1379
CAMP10	Hugo	2	667	45	208	1044	96
CAMP11	Hugo	2	566	52	211	739	288
CAMP12	Bottom la	1	229	13	309	249	164
CAMP13	Hugo	2	677	31	343	327	126
CAMP14	Hugo	2	585	46	151	251	499
CAMP15	Hugo	2	1418	28	70	1767	775
CAMP16	Hugo	2	1421	33	47	1911	514

Plot Number	Soil Type	Site Index	Elev (ft)	Percent Slope (%)	Aspect (degrees)	Distance to nearest road (ft)	Distance to nearest water (ft)
CAMP17	Hugo	2	1284	32	196	271	1748
CAMP19	Hugo	2	[illegible]	26	234	415	777
CAMP20	Hugo	2	1178	28	164	431	283
CAMP21	Larabee	2	816	55	100	222	46
CAMP22	Hugo	2	1236	28	164	337	420
CAMP23	Larabee	2	1445	47	285	227	65
CAMP25	Larabee	2	1606	34	237	317	506
CAMP26	Larabee	2	1477	28	176	297	585
[illegible]	Hugo	2	1337	8	352	123	1433
[illegible]	Larabee	2	[illegible]	28	233	127	43
[illegible]	Hugo	2	654	39	217	897	372
CAMP30	Hugo	2	462	48	5	301	396
CAMP31	Larabee	2	1229	18	240	280	88
CAMP32	Hugo	2	1223	42	231	493	699
CAMP33	Hugo	2	700	30	347	298	322
CAMP34	Hugo	2	1320	8	352	237	1071
CAMP35	Hugo	2	816	23	58	191	1086
CAMP36	Hugo	2	1209	29	160	533	777
CAMP37	Hugo	2	1157	19	227	1089	75
CAMP38	Hugo	2	1240	28	238	765	239
CAMP39	Hugo	2	873	23	58	13	1330
CAMP40	Hugo	2	1390	26	233	199	783
CAMP41	Hugo	2	1366	28	256	346	787
CAMP42	Hugo	2	1387	15	174	225	581
CAMP43	Hugo	2	909	27	34	81	1329
CAMP44	Larabee	2	975	20	3	298	257
ELK01	Hugo	2	1340	10	159	194	1134
ELK02	Hugo	2	1318	21	22	315	813
ELK03	Hugo	2	1046	15	248	263	352
ELK04	Hugo	2	1016	16	316	209	135
ELK05	Hugo	2	1052	16	304	235	145
ELK06	Hugo	2	1063	19	312	153	299
ELK07	Hugo	2	1109	16	304	294	224
ELK08	Hugo	2	1240	16	25	147	1080
ELK09	Hugo	2	968	15	248	183	146
ELK10	Hugo	2	1450	24	8	128	191
ELK11	Hugo	2	1266	10	13	309	1820
ELK12	Hugo	2	1083	26	27	164	733
ELK13	Larabee	2	1804	14	221	225	816
ELK14	Hugo	2	1376	15	221	347	1240
ELK15	Larabee	2	1392	17	51	167	270
ELK16	Hugo	2	1383	23	26	530	605
ELK17	Hugo	2	1434	27	13	335	1082
ELK18	Larabee	2	1604	7	277	153	42
ELK19	Larabee	2	1610	16	170	232	314
ELK20	Larabee	2	1693	18	64	1103	930
ELK21	Larabee	2	1705	14	33	1020	842
ELK22	Larabee	2	1675	8	150	1379	1075

Plot Number	Soil Type	Site Index	Elev (ft)	Percent Slope (%)	Aspect (degrees)	Distance to nearest road (ft)	Distance to nearest water (ft)
ELK23	Larabee	2	1726	8	237	438	622
ELK24	Larabee	2	1665	11	257	670	663
ELK25	Hugo	2	1141	17	25	293	62
ELK26	Hugo	2	1598	18	340	278	2411
ELK27	Hugo	2	1636	19	337	221	2365
ELK28	Larabee	2	1454	30	286	96	403
ELK29	Hugo	2	1482	24	284	49	1339
ELK31	Larabee	2	1512	21	235	66	1002
ELK32	Hugo	2	963	19	306	159	18
ELK33	Larabee	2	1608	6	272	82	670
ELK34	Hugo	2	1120	28	56	103	108
ELK35	Hugo	2	1059	27	205	95	419
ELK36	Hugo	2	1284	26	7	138	848

Appendix B. Crosswalk between WHR and Seral Stage

WHR Type	Species Description	Size Description	Density description	Seral Stage
MCP1_M	Montane Chaparral	Seedling Shrub	Mod Cover (40-59%)	Forest Opening
PGS2_D	Perennial Grassland	Tall Herb (>12")	Dense Cover (60-100%)	Perennial Grassland
MHW4BM	Montane Hardwood	Med Tree (16-24" DBH)	Mod Cover (40-59%)	Montane Hardwood
MHW4BD	Montane Hardwood	Med Tree (16-24" DBH)	Dense Cover (60-100%)	Montane Hardwood
MHC2_S	Montane Hardwood-Conifer	Sapling (1-6" DBH)	Sparse Cover (10-24%)	Young Forest
MHC2_M	Montane Hardwood-Conifer	Sapling (1-6" DBH)	Mod Cover (40-59%)	Young Forest
MHC3_S	Montane Hardwood-Conifer	Pole (6-11" DBH)	Sparse Cover (10-24%)	Young Forest
MHC3_D	Montane Hardwood-Conifer	Pole (6-11" DBH)	Dense Cover (60-100%)	Young Forest
MHC4AM	Montane Hardwood-Conifer	Small Tree (12-16" DBH)	Mod Cover (40-59%)	Mid Successional
MHC4BS	Montane Hardwood-Conifer	Med Tree (16-24" DBH)	Sparse Cover (10-24%)	Mid Successional
MHC4BM	Montane Hardwood-Conifer	Med Tree (16-24" DBH)	Mod Cover (40-59%)	Mid Successional
MHC4BD	Montane Hardwood-Conifer	Med Tree (16-24" DBH)	Dense Cover (60-100%)	Mid Successional
MHC6_D	Montane Hardwood-Conifer	Large sawtimber (Multi-layered)	Dense Cover (60-100%)	Late Successional
DFR5_M	Douglas-fir Forest	Med-Large sawtimber (>24" DBH)	Mod Cover (40-59%)	Late Successional
RDW2_M	Redwood Forest	Sapling (1-6" DBH)	Mod Cover (40-59%)	Young Forest
RDW4AP	Redwood Forest	Small Tree (12-16" DBH)	Open Cover (25-39%)	Mid Successional
RDW4AM	Redwood Forest	Small Tree (12-16" DBH)	Mod Cover (40-59%)	Mid Successional
RDW4AD	Redwood Forest	Small Tree (12-16" DBH)	Dense Cover (60-100%)	Mid Successional
RDW4BS	Redwood Forest	Med Tree (16-24" DBH)	Sparse Cover (10-24%)	Mid Successional
RDW4BM	Redwood Forest	Med Tree (16-24" DBH)	Mod Cover (40-59%)	Mid Successional
RDW5_P	Redwood Forest	Med-Large sawtimber (>24" DBH)	Open Cover (25-39%)	Mid Successional
RDW5_M	Redwood Forest	Med-Large sawtimber (>24" DBH)	Mod Cover (40-59%)	Mid Successional
RDW5_D	Redwood Forest	Med-Large sawtimber (>24" DBH)	Dense Cover (60-100%)	Late Successional
RDW6_D	Redwood Forest	Large sawtimber (Multi-layered)	Dense Cover (60-100%)	Late Successional

Appendix B. Stand seral vs Plot seral

14-May-96

Plot	Stand type	Stand WHR	Stand Seral	Plot WHR	Plot Seral
BEER01	BrD	MHC4BS	Mid Successional	DFR4BP	Mid Successional
BEER02	BrD	MHC4BS	Mid Successional	MHC3_P	Young Forests
BEER03	YY3D_R	MHC4BM	Mid Successional	MHC4BD	Mid Successional
BEER04	YY1D_R	DFR5_M	Late Successional	DFR5_M	Late Successional
BEER05	YY3D_R	MHC4BM	Mid Successional	MHC4BM	Mid Successional
BEER06	R4D_R	MHC4AM	Mid Successional	DFR5_M	Late Successional
BEER07	R4D_R	MHC4AM	Mid Successional	MHC4BD	Mid Successional
BEER08	OYY2D_R	MHW4BD	Old-Growth	MHW4BD	Montane Hardwood
BEER12	YY3D_R	MHC4BM	Mid Successional	DFR5_S	Mid Successional
BEER13	YY1D_R	DFR5_M	Late Successional	DFR5_D	Late Successional
BEER14	YY2D_R	MHC4BD	Mid Successional	MHC4BD	Mid Successional
BEER15	XD	MCP1_M	Forest Openings	MCP1_M	Forest Openings
BEER16	OYY2D_R	MHW4BD	Old-Growth	MHW4AD	Montane Hardwood
BEER17	OYY2D_R	MHW4BD	Old-Growth	DFR5_M	Late Successional
BEER18	AD	MHC3_S	Young Forests	MCP1_M	Forest Openings
BEER19	AD	MHC3_S	Young Forests	MHW3_S	Montane Hardwood
BEER20	AD	MHC3_S	Young Forests	MHW2_P	[illegible]
BEER21	YY2D_R	MHC4BD	Mid Successional	MHW4BD	Montane Hardwood
BEER22	OYY4D_R	MHW4BM	Old-Growth	MHC5_P	Mid Successional
BEER23	YY1D_R	DFR5_M	Late Successional	DFR5_D	Late Successional
BEER24	AD	MHC3_S	Young Forests	MCP1_M	Forest Openings
BEER25	BrR	MHC2_M	Young Forests	MHC2_D	Young Forests
BEER26	R4R_S	MHC3_D	Young Forests	MHC3_D	Young Forests
BEER27	AD	MHC3_S	Young Forests	DFR4AS	Mid Successional
BEER28	YY1D_R	DFR5_M	Late Successional	DFR5_M	Late Successional
BEER29	YY1D_R	DFR5_M	Late Successional	DFR5_0	Late Successional
BEER30	YY2D_R	MHC4BD	Mid Successional	DFR5_M	Late Successional
BEER31	YY1D_R	DFR5_M	Late Successional	DFR5_M	Late Successional
BEER32	AD	MHC3_S	Young Forests	MHC2_P	Young Forests
BEER33	GRASS	PGS2_D	Perennial Grassland	PGS2_D	Perennial Grassland
BEER34	GRASS	PGS2_D	Perennial Grassland	PGS2_D	Perennial Grassland
BEER35	GRASS	PGS2_D	Perennial Grassland	PGS2_D	Perennial Grassland
CAMP01	AR	RDW2_M	Young Forests	MHC2_M	Young Forests
CAMP02	BrR	MHC2_M	Young Forests	MHC4AS	Mid Successional
CAMP03	BrR	MHC2_M	Young Forests	MCP1_M	Forest Openings
CAMP04	RB4R_I	RDW4BM	Mid Successional	RDW4AD	Mid Successional
CAMP05	Y1R-N	RDW6_D	Late Successional	ROW481P	Mid Successional
CAMP06	BrR	MHC2_M	Young Forests	MHC2_M	Young Forests
CAMP07	BrR	MHC2_M	Young Forests	MI [illegible] P	Montane Hardwood
CAMP08	RB4R_N	RDW4BM	Mid Successional	MHC6_D	Late Successional
CAMP09	C2R	RDW4AM	Mid Successional	RDW6_D	Late Successional
CAMP10	OYY1R	RDW5_D	Old-Growth	RDW5_M	Late Successional
CAMP1 1	R4R_N	RDW4BS	Mid Successional	RDW5_D	Late Successional
CAMP12	YYR2R	MHC6_D	Late Successional	MHC4BD	Mid Successional
CAMP13	RC4R_N	RDW6_D	Late Successional	DFR4BM	Mid Successional
CAMP1 4	R4RD_N	RDW4AP	Mid Successional	RDW4AP	Mid Successional
CAMP15	R3RD	RDW4BM	'Mid Successional	RDW4BM	Mid Successional

Plot	Stand type	Stand WHR	Stand Seral	Plot WHR	Plot Seral
CAMP16	R3RD	RDW4BM	Mid Successional	RDW6_D	Late Successional
CAMP17	OYY1RD	RDW5_D	Old-Growth	RDW5_D	Late Successional
CAMP19	Y2R	RDW6_D	Late Successional	RDW6_D	Late Successional
CAMP20	R3R_N	RDW5_P	Mid Successional	RDW3_D	Young Forests
CAMP21	R4R_N	RDW4BS	Mid Successional	RDW4AP	Mid Successional
CAMP22	R3R_N	RDW5_P	Mid Successional	RDW5_M	Late Successional
CAMP23	RB3R	RDW6_D	Late Successional	RDW4AP	Mid Successional
CAMP25	AR	RDW2_M	Young Forests	DFR2_M	Young Forests
CAMP26	R2R	RDW6_D	Late Successional	RDW5_P	Mid Successional
CAMP27	R3R_N	RDW5_P	Mid Successional	RDW4BM	Mid Successional
CAMP28	B1RD	RDW4AM	Mid Successional	RDW5_D	Late Successional
CAMP29	R4R_N	RDW4BS	Mid Successional	RDW5_D	Late Successional
CAMP30	RC4R_N	RDW6_D	Late Successional	RDW6_D	Late Successional
CAMP31	RB3R	RDW6_D	Late Successional	RDW5_D	Late Successional
CAMP32	R3R_N	RDW5_P	Mid Successional	RDW4BM	Mid Successional
CAMP33	RC4R_N	RDW6_D	Late Successional	RDW6_D	Late Successional
CAMP34	R3R_N	RDW5_P	Mid Successional	RDW4BP	Mid Successional
CAMP35	RB4R_N	RDW4BM	Mid Successional	DFR4AD	Mid Successional
CAMP36	O1R	RDW5_D	Old-Growth	RDW5_D	Late Successional
CAMP37	O1RD	RDW5_D	Old-Growth	RDW5_D	Late Successional
CAMP38	O1RD	RDW5_D	Old-Growth	RDW5_D	Late Successional
CAMP39	RB4R_N	RDW4BM	Mid Successional	DFR4AM	Mid Successional
CAMP40	RB4R_N	RDW4BM	Mid Successional	RDW4AD	Mid Successional
CAMP41	RB4R_N	RDW4BM	Mid Successional	RDW4BM	Mid Successional
CAMP42	RB4R_N	RDW4BM	Mid Successional	RDW6_D	Late Successional
CAMP43	YC1RDW	RDW4AD	Mid Successional	RDW4AM	Mid Successional
CAMP44	B1RD	RDW4AM	Mid Successional	DFR4AM	Mid Successional
ELK01	XR	MHC2_S	Young Forests	RDW2_P	Young Forests
ELK02	XR	MHC2_S	Young Forests	MCP1_M	Forest Openings
ELK03	XR	MHC2_S	Young Forests	MCP1_M	Forest Openings
ELK04	O1R_E	RDW5_D	Late Successional	RDW5_M	Late Successional
ELK05	R3R_N	RDW5_P	Mid Successional	MCP1_M	Forest Openings
ELK06	R3R_N	RDW5_P	Mid Successional	RDW5_S	Mid Successional
ELK07	R3R_N	RDW5_P	Mid Successional	RDW5_S	Mid Successional
ELK08	R3R_N	RDW5_P	Mid Successional	RDW5_S	Mid Successional
ELK09	R3R_N	RDW5_P	Mid Successional	MHW2_P	Montane Hardwood
ELK10	OYY2RD	RDW5_D	Old-Growth	RDW5_M	Late Successional
ELK11	R3R_N	RDW5_P	Mid Successional	RDW4BS	Mid Successional
ELK12	R4R_N	RDW4BS	Mid Successional	RDW5_M	Late Successional
ELK13	OYY3RD	RDW5_M	Old-Growth	DFR4BM	Mid Successional
ELK14	XR	MHC2_S	Young Forests	MHC2_S	Young Forests
ELK15	OYY2RD	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK16	OYY2RD	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK17	O2R	RDW5_D	Old-Growth	RDW5_P	Mid Successional
ELK18	O1R_E	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK19	O1DR	RDW5_D	Old-Growth	DFR5_M	Late Successional
ELK20	O1R_E	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK21	O1DR	RDW5_D	Old-Growth	DFR5_D	Late Successional
ELK22	OYY1R	RDW5_D	Old-Growth	DFR5_D	Late Successional
ELK23	01RD_E	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK24	O1DR	RDW5_D	Old-Growth	RDW5_D	Late Successional

Plot	stand type	Stand WHR	Stand Seral	Plot WHR	Plot Seral
ELK25	OO2R	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK26	R4R_N	RDW4BS	Mid Successional	DFR2_D	Young Forests
ELK27	R4R_N	RDW4BS	Mid Successional	DFR2_S	Young Forests
ELK28	AR	RDW2_M	Young Forests	DFR2_M	Young Forests
ELK29	AR	RDW2_M	Young Forests	MHC2_M	Young Forests
ELK31	AR	RDW2_M	Young Forests	DFR2_P	Young Forests
ELK32	R4R_N	RDW4BS	Mid Successional	RDW2_M	YoungForests
ELK33	OO1R	RDW5_D	Old-Growth	RDW5_D	Late Successional
ELK34	R4R N	RDW4BS	Mid Successional	RDW5 P	Mid Successional
ELK35	XR	MHC2_S	Young Forests	MCP1_M	Forest Openings
ELK36	XR	MHC2 S	Young Forests	MCP1 M	Forest Openings

Appendix C. Plant and Animal Species List for Pacific Lumber Company

19-May-96

GROUP	COMMON NAME	SCIENTIFIC NAME
Birds		
	ALIEN'S HUMMINGBIRD	Selasphorus sasin
	AMERICAN GOLDFINCH	Carduelis tristis
	AMERICAN KESTREL	Falco sparverius
	AMERICAN ROBIN	Turdus migratorius
	ANNA'S HUMMINGBIRD	Calypte anna
	BAND-TAILED PIGEON	Columba fasciata
	BARN SWALLOW	Hirundo rustica
	BEWICK'S WREN	Thryomanes bewickii
	BLACK HEADED GROSSBEAK	Pheucticus melanocephalus
	BLACK-THROATED GRAY WARBLER	Dendroica nigrescens
	BLUE GROUSE	Dendragapus obscurus
	BREWER'S BLACKBIRD	Euphagus cyanocephalus
	BROWN CREEPER	Certhia americana
	CALIFORNIA QUAIL	Callipela californica
	CALIFORNIA TOWHEE	Pipilo crissalis
	CEDAR WAXWING	Bombycilla cedrorum
	CHESTNUT-BACKED CHICKADEE	Parus rufescens
	CHIPPING SPARROW	Spizella passerina
	COMMON BUSHTIT	Psaltriparus minimus
	COMMON FLICKER	Colaptes cafer
	COMMON RAVEN	Corvus corax
	COMMON YELLOWTHROAT	Geothlypis trichas
	COPPER'S HAWK	Accipiter cooperii
	DARK-EYED JUNCO	Junco hyemalis
	DOWNY WOODPECKER	Picoides pubescens
	EUROPEAN STARLING	Sturnus vulgaris
	FOX SPARROW	Passerella iliaca
	GOLDEN EAGLE	Aquila chrysaetos
	GOLDEN-CROWNED KINGLET	Regulus satrapa
	GRAY JAY	Perisoreus canadensis
	HAIRY WOODPECKER	Picoides villosus
	HERMIT THRUSH	Catharus guttatus
	HERMIT WARBLER	Dendroica occidentalis
	HOUSE WREN	Troglodytes aedon
	HUTTON'S VIREO	Vireo huttoni
	LARK SPARROW	Chondestes grammacus
	LAZULI BUNTING	Passerina amoena
	MACGILLIVRAY'S WARBLER	Oporornis tolmiei
	MARBLED MURRELET	Brachyramphus marmoratus
	MOUNTAIN QUAIL	Oreortyx pictus
	MOURNING DOVE	Zenaida macroura
	NASHVILLE WARBLER	Vermivora ruficapilla
	NORTHERN FLICKER	Colaptes auratus

GROUP	COMMON NAME	SCIENTIFIC NAME
	OLIVE-SIDED FLYCATCHER	Contopus borealis
	ORANGE-CROWNED WARBLER	Vermivora celata
	PACIFIC-SLOPE FLYCATCHER	Empidonax difficilis
	PILEATED WOODPECKER	Dryocopus pileatus
	PINE SISKIN	Carduelis pinus
	PURPLE FINCH	Carpodacus purpureus
	RED-B- NUTHATCH	Sitta canadensis
	RED-BREASTED SAPSUCKER	Sphyrapicus ruber
	RED-TAIL HAWK	Buteo jamaicensis
	RUBY-CROWNED KINGLET	Regulus calendula
	RUFFED GROUSE	Bonasa umbellus
	RUFOUS HUMMINGBIRD	Selasphorus rufus
	RUFOUS-SIDED TOWHEE	Pipilo erythrophthalmus
	SOLITARY VIREO	Vireo solitarius
	SONG SPARROW	Melospiza melodia
	STELLER'S JAY	Cyanocitta stelleri
	SWAINSON'S THRUSH	Catharus ustulatus
	TREE SWALLOW	Tachycineta bicolor
	VARIED THRUSH	Ixoreus naevius
	VAUX'S SWIFT	Chaetura vauxi
	WARBLING VIREO	Vireo gilvus
	WESTERN BLUEBIRD	Sialia mexicana
	WESTERN MEADOWLARK	Sturnella neglecta
	WESTERN TANAGER	Piranga ludoviciana
	WESTERN WOOD-PEEWEE	Contopus sordidulus
	WHITE-CROWNED SPARROW	Zonotrichia leucophyrus
	WILSON'S WARBLER	Wilsonia pusilla
	WINTER WREN	Troglodytes troglodytes
	WRENTIT	Chamaea fasciata
	YELLOW WARBLER	Dendroica petechia
	YELLOW-RUMPED WARBLER	Dendroica coronata
	Number of Species =	74
Amphibians		
	ARBOREAL SALAMANDER	Aneides lugubris
	BLACK SALAMANDER	Aneides flavipunctatus
	CALIFORNIA SLENDER SALAMANDER	Batrachoseps attenuatus
	CLOUDED SALAMANDER	Aneides ferreus
	NORTHWESTERN SALAMANDER	Ambystoma gracile
	OREGON ENSATINA	Ensatina eschscholtzii
	PACIFIC GIANT SALAMANDER	Dicamptodon ensatus
	PACIFIC TREE FROG	Hyla regilla
	PAINTED ENSATINA	Ensatina eschscholtzii picta
	RED-LEGGED FROG	Rana aurora
	TAILED FROG	Ascaphus truei
	Number of Species =	11
Reptiles		
	ALLIGATOR LIZARD	Gerrhonotus coeruleus

GROUP	COMMON NAME	SCIENTIFIC NAME
	CALIFORNIA RED-SIDED GARTER SNA	Thamnophis sirtalis infernalis
	GOPHER SNAKE	Pituophis melanoleucus
	RUBBER BOA	Charina bottae
	SHARP-TAILED SNAKE	Contia tenuis
	W. TERRESTRIAL GARTER SNAKE	Thamnophis elegans
	WESTERN FENCE LIZARD	Sceloporus occidentalis
	WESTERN SKINK	Eumeces skiltonianus
	Number of Species =	8
Mammals		
	ALLEN'S CHIPMUNK	Tamias senex
	BADGER	Taxidea taxus
	BLACK BEAR	Ursus americanus
	BLACKTAIL JACKRABBIT	Lepus californicus
	BOBCAT	Lynx rufus
	BOTTA'S POCKET GOPHER	Thomomys bottae
	BROAD-F- MOLE	Scapanus latimanus
	BRUSH RABBIT	Sylvilagus bachmani
	CALIFORNIA GROUND SQUIRREL	Citellus beecheyi
	CALIFORNIA RED-TREE VOLE	Arborimus pomo
	CALIFORNIA VOLE	Microtus californicus
	CHICKAREE	Tamiasciurus douglasi
	COAST MOLE	Scapanus orarius
	COYOTE	Canis latrans
	DEER MOUSE	Peromyscus maniculatus
	DUSKY-FOOTED WOODRAT	Neotoma fuscipes
	FISHER	Martes pennanti
	GOLDEN-MANTLED SQUIRREL	Citellus lateralus
	GRAY FOX	Urocyon cinereoargenteus
	HOUSE MOUSE	Mus musculus
	LONGTAIL VOLE	Microtus longicaudus
	MOUNTAIN BEAVER	Aplodontia rufa
	MULE DEER	Odocoileus hemionus
	NORTHERN FLYING SQUIRREL	Glaucomys sabrinus
	OPPOSSUM	Didelphis marsupialis
	OREGON VOLE	Microtus oregoni
	PACIFIC JUMPING MOUSE	Zapus trinotatus
	PACIFIC SHREW	Sorex pacificus
	PACIFICWATERSHREW	Sorex bendire
	PINYON MOUSE	Peromyscus truei
	RACCOON	Procyon lotor
	REDBACK VOLE	Clethrionomys occidentalis
	RINGTAIL	Bassariscus astutus
	SHORTTAIL WEASEL	Mustela ermines
	SHREW-MOLE	Neurotrichus gibbis
	SPOTTED SKUNK	Spilogale putorius
	STRIPED SKUNK	Mephitis mephitis
	TOWNSEND CHIPMUNK	Eutamias townsendi
	TROWBRIDGE SHREW	Sorex trowbridgei

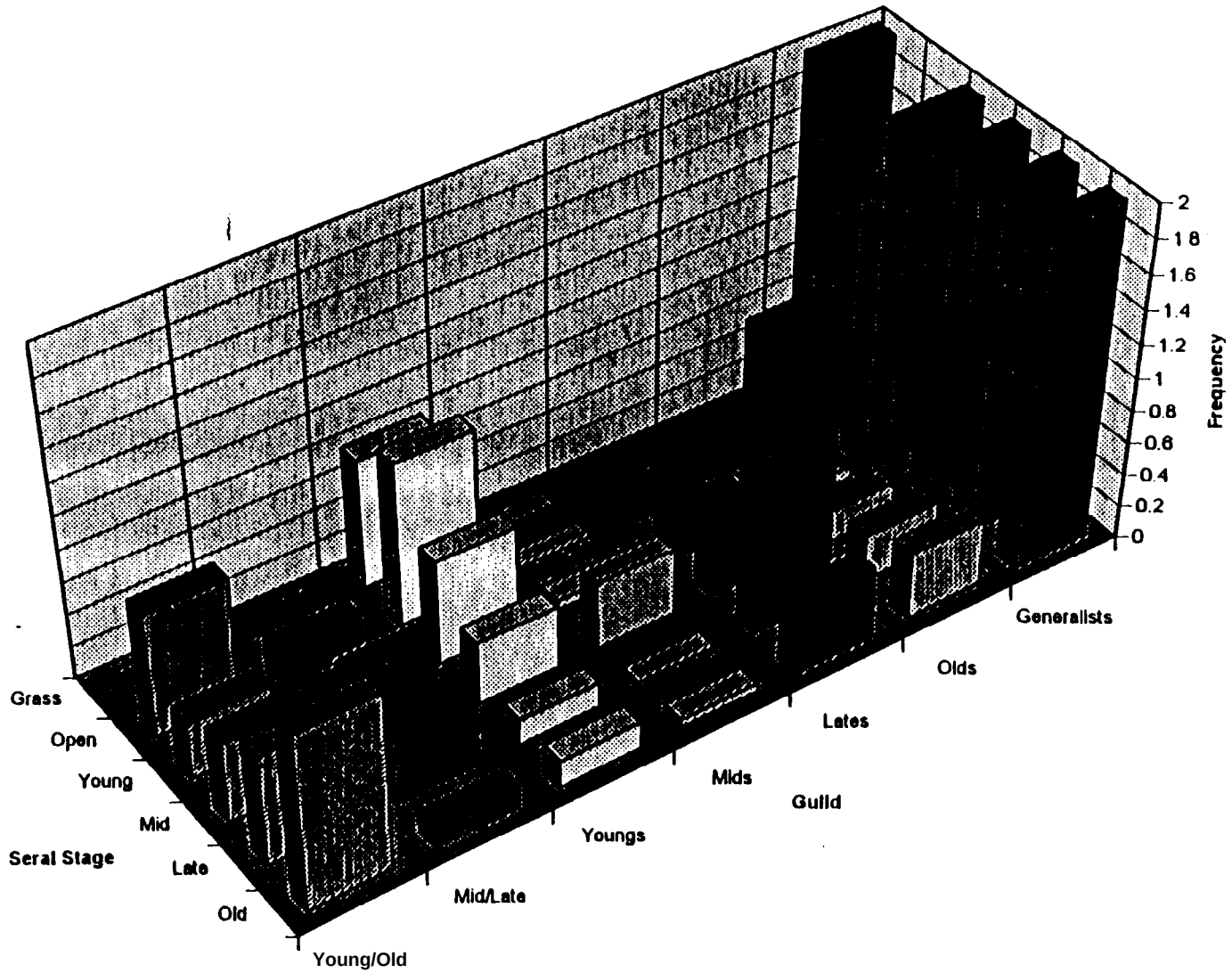
GROUP	COMMON NAME	SCIENTIFIC NAME
	VAGRANT SHREW	Sorex vagrans
	WESTERN GRAY SQUIRREL	Sciurus griseus
	WESTERN HARVEST MOUSE	Reithrodontomys megalotis
	WILD PIG	Sus scrofa
	Number of Species =	43
Plants		
	AMERICAN HOLLY	ILEX OPACA
	BIG-LEAF MAPLE	ACER MACROPHYLLUM
	BLACKBERRY	RUBUS URSINUS
	BLEEDING HEART	DICENTRA FORMOSA
	BLUE-BLOSSOM	CEANOTHUS THRYSIFLORUS
	BOYKINIA	BOYKINIA ELATA
	BRACKEN FERN	PTERIDIUM AQUILIN
	BRODIAEA	BRODIAEA LAXA
	CA. BAY LAUREL	UMBELLULARIA CALIFORNICA
	CALIFORNIA BEDSTRAW	GALIUM CALIFORICUM
	CALIFORNIA BEE PLANT	SCROPHULARIA CALIFORNICUM
	CALIFORNIA POPPY	ESCHSCHOLZEA CALIFORNICA
	CANYON LIVE OAK	QUERCUS CHYSOLEPIS
	CEANOTHUS SPP.	
	CHAIN FERN	WOODWARDIA FIMBRIATA
	CLASPING-LEAVED TWISTED STALK	STREPHTOPUS AMPLEXIFOLIUS
	C O A S T -	ERICHTITES PRENANTHOIDES
	COLTSFOOT	PETASITES PALMATUS
	COLUMBINE	AQUILEGIA FORMOSA
	COYOTE BRUSH	BACCHARIS PILULARIS CONSANGUINEA
	DANDELION	TARAXACUM OFFICINALE
	DEER FERN	BLECHNUM SPICANT
	DOUGLAS FIR	PSEUDOTSUGA MENZIESII
	ELDERBERRY	SAMBUCUS CALLICARPA
	EVERGREEN-VIOLET	VIOLA SEMPERVIRENS
	FALSE SOLOMON'S SEAL	SMILACINA RACEMOSA
	FETID ADDERS TONGUE	SCOLIOPUS BIGELOVII
	FIREWEED	EPILOBIUM ANGUSTIFOLIUM
	FIVE-FINGER FERN	ADIANTADIANTUM PEDATUM ALEUTIC
	GOLDEN BACKED FERN	PITYROGRAMMA TRIANGULARIS
	GOOSEBERRY	RIBES MENZIESII
	GRAND FIR	ABIES GRANDIS
	HEDGE NETTLE	STACHYS CHAMISSONIS
	HONEYSUCKLE	LONICERA HISPIDULA
	HORSETAIL	EQUISETUM SPP.
	HUCKLEBERRY	VACCINIUM OVATUM
	INSIDE-OUT FLOWER	VANCOUVERIA PLANIPETALA
	LADY FERN	ATHYRIUM FILIX-FEMINA
	LEOPARD LILY	LILIUM PARDALINUM
	LUPINE	LUPINUS SSP.
	MADRONE	ARBUTUS MENZIESII
	MANZANITA	ARCTOSTAPHYLOS SPP.

GROUP	COMMON NAME	SCIENTIFIC NAME
	MANZANITA	ARCTOSTAPHYLOS COLUMBIANA
	MINERS LETTUCE	MONTIA PERFOLIATA
	MONTIA	MONITA SIBIRICA
	N. WILLOW HERB	EPILOBIUM ADENOCOALON
	OCEAN SPRAY	HOLODISCUS DISCOLOR
	OREGON GRAPE	BERBERIS AQUIFOLIUM
	OREGON GRAPE	BERBERIS NERVOSA
	PACIFICMITELLA	MATELLA TRIFIDA
	PACIFIC STARFLOWER	TRIENTALIS LATIFOLIA
	PAMPAS GRASS	CORTADERIA SELLOANA
	PEARLY EVERLASTING	ANAPHALIS MARGARITACEA
	PENNY ROYAL	MENTHA SP.
	PLANTAIN	PLANTAGO LANCEOLATE
	POISON OAK	RHUS DIVERSILOBA
	PURPLE CUDWEED	GNAPHALIUM PURPURCUM
	QUEEN ANNES LACE	DAUCUS CAROTA
	RED ALDER	ALNUS RUBRA
	RED HENBIT	LAMIUM PERFUREUM
	RED HUCKLEBERRY	VACCINIUM PARVILILIUM
	RED-FLOWERING CURRENT	RIBES SANGUINEUM
	REDWOOD	SEQUOIA SEMPERVIRENS
	REDWOOD IVY	VANCOUVERIA HEXANDRA
	REDWOOD SORREL	OXALIS OREGANA
	SALAL	GAULTHERIA SHALLON
	SALMONBERRY	RUBUS SPECTABILIS
	SHEEP SORREL	RUMEX ACCTOSELLA
	SLIM SOLOMEN'S SEAL	SMILACINA STELLATA
	STINGING NETTLE	URTICA HOLSERICEA
	SWEET-SCENTED BEDSTRAW	GALIUM TRIFLORUM
	WORD FERN	POLYSTICHUM MINITUM
	TAN OAK	LITHOCARPUS DENSIFLORUS
	TARWEED	MADIA MADIODES
	THIMBLEBERRY	RUBUS PARVIFLORUS
	THISTLE	CIRSIUM VULGARE
	TRAIL PLANT	ADENOCAULON BICOLOR
	TRILLIUM	TRILLIUM SP.
	UNKNOWN BEDSTRAW	
	UNKNOWN GRASS	
	UNKNOWN MOSS	
	VANILLA LEAF	ACHLYS TRIPHYLLA
	VARI-LEAF COLLOMIA	COLLOMIA HETEROPHYLLA
	VETCH SPP.	VICIA SPP.
	WATER LEAF	HYDROPHYLLUM TENUIPES
	WESTERN HEMLOCK	TSUGA HETEROPHYLLA
	WESTERN RED CEDAR	THUJA PLICATA
	WHITE HAWKWEED	HIERCACIUM ALBIFLORUM
	WILD CUCUMBER	MARAH OREGANUS
	WILD GINGER	ASARUM CAUDATUM
	WILD IRIS	IRIS DOUGLASIANA
	WILD RASBERRY	RUBUS LEUCODERMIS

GROUP	COMMON NAME	SCIENTIFIC NAME
	WILD SWEET PEA	LATHYRUS VESTITUS
	WINDFLOWER	ANEMONE DELTOIDEA
	WOOD FERN	DRYOPTEN'S EXPANSA
	WOOD NETTLE	STACHYS MEXICANA/CHAMISSONIS
	WOOD ROSE	ROSA GYMNOCARPA
	WOOD STRAWBERRY	FRAGARIA CALIFORNICA
	YARROW	ACHILLEA BOREALIS CALIFORNICA
	YELLOW WOOD VIOLET	VIOLA GLABELLA
	YERBA BUENA	SATUREJA DOUGLASII
	YERBA DE SELVA	WHIPPLEA MODESTA
	Number of Species =	102
	Total Number of Species	238

Guilds \

Plant and Animal Guilds In Doug-Fir Forests



Appendix D. Guilds in Doug-Fir Forests

16-May-96

Guild Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
Young/Olds							
	PACIFIC-SLOPE FLYCATCHER	0.00	1.00	0.75	0.70	0.33	1.50
	WARBLING VIREO	0.00	1.00	0.25	0.20	0.17	1.75
	ARBOREAL SALAMANDER	0.00	1.00	0.00	0.00	0.00	0.25
	CALIFORNIA SLENDER SALAMANDER	0.00	0.00	0.38	1.00	2.17	0.75
	Average =	0.00	0.75	0.34	0.48	0.67	1.06
Mid/Lates							
	OREGON ENSATINA	0.00	1.00	0.13	0.50	0.50	0.25
	W. TERRESTRIAL GARTER SNAKE	0.00	0.00			0.33	0.25
	CALIFORNIA BEDSTRAW	0.00	0.00	0.00	0.80	0.67	0.00
	COLUMBINE	0.00	0.00	0.13	0.20 0.80	0.50 0.17	0.00
	OCEAN SPRAY	0.00	0.00				0.25
	TRAIL PLANT	0.00	0.00	0.00	0.50	0.50	0.00
	Average =	0.00	0.17	0.13	0.52	0.44	0.13
Youngs							
	ALLEN'S HUMMINGBIRD	0.00	0.00	0.25	0.20	0.00	0.00
	AMERICAN KESTREL	0.00	0.00	0.13	0.00	0.00	0.00
	AMERICAN ROBIN	0.33	0.00	0.13	0.10	0.00	0.00
	ANNA'S HUMMINGBIRD	0.00	0.00	0.13	0.00	0.00	0.00
	BAND-TAILED PIGEON	0.00	0.00	0.13	0.00	0.00	0.00
	BARN SWALLOW	0.33	0.00	0.00	0.00	0.00	0.00
	BEWICK'S WREN	0.00	1.00	0.25	0.00	0.00	0.00
	BREWER'S BLACKBIRD	0.00	0.00	0.25	0.00	0.00	0.00
	CHIPPING SPARROW	0.33	0.00	0.00	0.00	0.00	0.00
	COMMON BUSHTIT	0.00	0.00	0.13	0.00	0.00	0.00
	COMMON YELLOWTHROAT	0.00	0.00	0.13	0.00	0.00	0.00
	DARK-EYED JUNCO	0.33	3.00	0.75	0.70	1.33	1.00
	FOX SPARROW	0.00	0.00	0.13	0.00	0.00	0 00
	GOLDEN EAGLE	0.00	0.00	0.13	0.00	0.00	0 00
	LARK SPARROW	0.33	0.00	0.00	0.00	0 00	0 00
	MACGILLIVRAY'S WARBLER	0.00	0.00	0.50	0.00	0.00	0.00
	PINE SISKIN	0.00	0.00	0.13	0.10	0.00	0 00
	RUFOUS HUMMINGBIRD	0.00	0.00	0.38	0.10	0.00	0 00

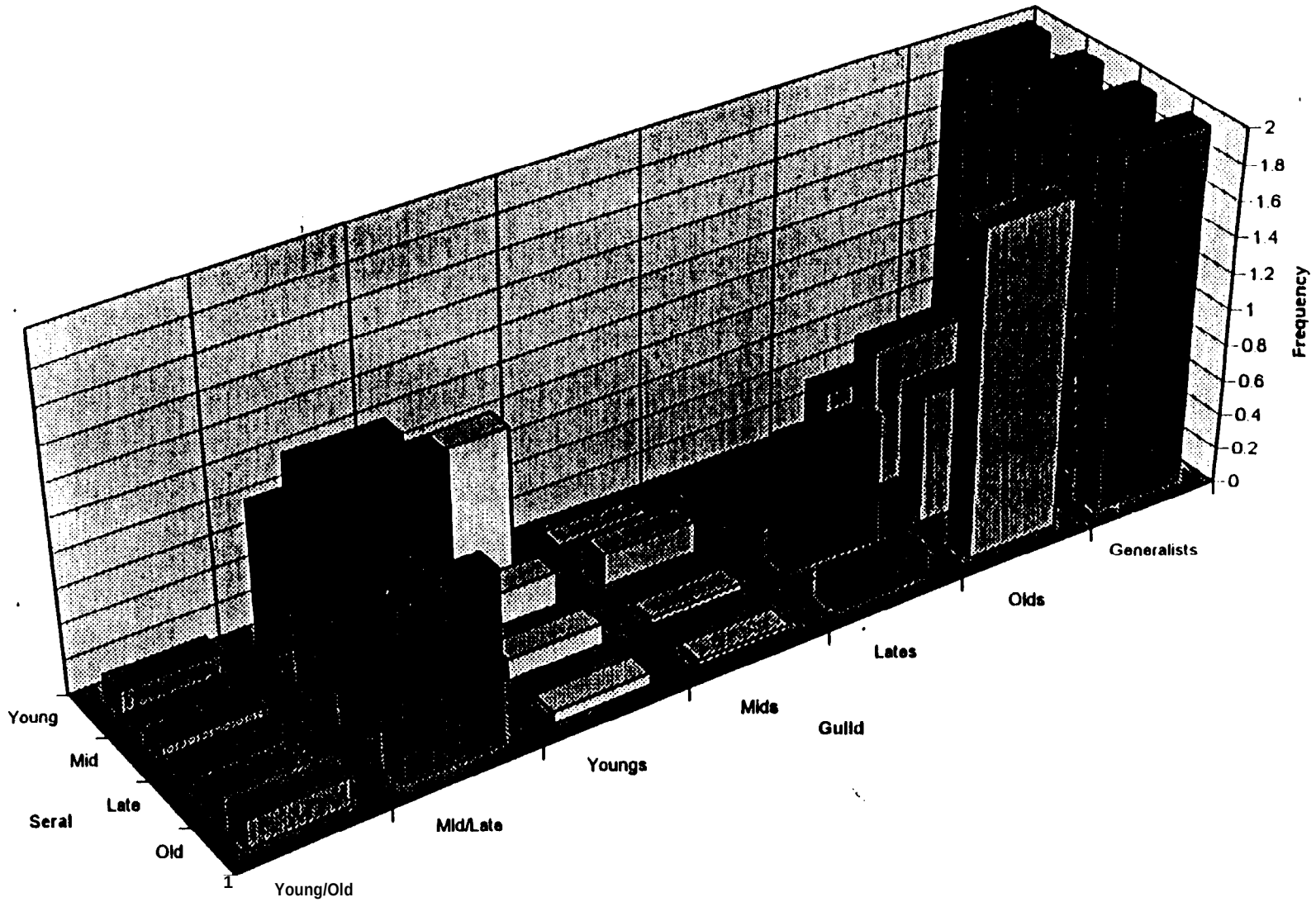
Guild Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Crass	Open	Young	Mid	Late	Old
	RUFOUS-SIDED TOWHEE	0.00	0.00	0.13	0.00	0.00	0 00
	SONG SPARROW	0.00	1.00	0.75	0.00	0.33	0.00
	SWAINSON'S THRUSH	0.00	0.00	0.13	0.00	0.00	0.00
	WESTERN BLUEBIRD	0.33	0.00	0.00	0.10	0.17	0.00
	WHITE-CROWNED SPARROW	0.00	0.00	0.50	0.00	0.00	0.00
	WILSON'S WARBLER	0.00	2:oo	1.13	1.00	0.33	1.00
	WRENTIT	0.00	0.00	0.75	0.00	0.00	0.25
	BLACK SALAMANDER	0.00	1.00	0.13	0.20	0.17	0.00
	PACIFIC GIANT SALAMANDER	0.00	1.00	0.00	0.00	0.17	0.00
	ALLIGATOR LIZARD	0.00	0.00	0.75	0.50	0.00	0.25
	SHARP-TAILED SNAKE	0.00	1.00	0.38	0.20	0.17	0.00
	WESTERN FENCE LIZARD	0.33	2.00	1.00	0.50	0. I7	0.25
	WESTERN SKINK	0.33	0.00	0.50	0.10	0.00	0 00
	ALLEN'S CHIPMUNK	0.00	0.00	0.13	0.10	0.00	0 00
	BADGER	0.33	0.00	0.00	0.00	0.00	0 00
	BOBCAT	0.00	0.00	0.13	0.10	0.00	0 00
	BOTTA'S POCKET GOPHER	0.67	0.00	0.00	0.10	0.00	0.00
	BRUSH RABBIT	0.00	0.00	0.38	0.30	0.00	0.00
	CALIFORNIA VOLE	5.00	0.00	0.63	0.20	0.00	0.00
	DEER MOUSE	2.33	5.00	1.75	2.60	1.17	1.00
	DUSKY-FOOTED WOODRAT	0.00	0.00	0.13	0.00	0.00	0.00
	GRAY FOX	0.67	0.00	0.00	0.30	0.00	0.00
	MULE DEER	0.00	0.00	0.13	0.00	0.00	0.00
	PINYON MOUSE	0.00	0.00	0.13	0.00	0.00	0 00
	VAGRANT SHREW	3.00	0.00	0.50	0.30	0.17	0 00
	WESTERN GRAY SQUIRREL	0.00	0.00	0.13	0.00	000	0 00
	WESTERN HARVEST MOUSE	0.00	0.00	0.13	0.00	0 00	0 00
	BLACKBERRY	4.67	0.00	3.13	I.20	0.50	0 75
	BLEEDING HEART	0.00	0.00	0.13	0.00	000	0 00
	BLUE-BLOSSOM	0.00	0.00	0.50	0.00	0.00	0 00
	BRACKEN FERN	13.33	0.00	4.13	1.10	0.67	I 00
	BRODIAEA	1.67	0.00	0.00	0.00	0.00	0 00
	CA. BAY LAUREL	0.00	5.14	1.05	6.21	0.00	IO6
	CALIFORNIA POPPY	1.00	0.00	0.00	0.00	0.00	0 00
	COLTSFOOT	0.00	0.00	0.25	0.20	0.17	0 00
	DANDELION	7.67	2.00	4.63	3.00	1.17	0.75
	FALSE SOLOMON'S SEAL	0.00	0.00	0.13	0.00	0.00	0.00
	FETID ADDERS TONGUE	0.00	0.00	0.00	0.50	1.33	0.25
	FIREWEED	0.00	45.00	1.00	1.50	0 00	1.25
	GOOSEBERRY	0.00	1.00	1.00	0.30	0.00	0 00
	HEDGE NETTLE	0.00	0.00	0.50	0.40	0.00	0.00
	HUCKLEBERRY	0.00	0.00	3.38	0.30	0.00	0.00
	LUPINE	6.67	0.00	0.38	0.20	0 00	0.75
	PACIFIC STARFLOWER	0.00	1.00	0.38	0.60	0 33	0 50
	PLANTAIN	0.00	0.00	0.13	0.10	0.00	0 00
	QUEEN ANNES LACE	0.00	0.00	0.13	0.00	0.00	0.00

Guild	Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
		RED HUCKLEBERRY	0.00	0.00	0.75	0.10	0.50	0 00
		RED-FLOWERING CURRENT	0.00	0.00	0.13	0.00	0 00	0 00
		SALMONBERRY		0.00	2.00		0.17	0.00
		SHEEP SORREL	5.33	2.00	1.63	0.90	0.17	0.25
		STINGING NETTLE	0.00	1.00	1.75	0.00	0.00	0.00
		TARWEED	1.00	0.00	0.75	0.70		0.00
		THIMBLEBERRY	0.00		1.38		0.00	0.50
		THISTLE	0.67	0.00	1.38	0.40	0.00	0 00
		VETCH SPP.	0.00	0.00	0.63	0.00	0 00	0 00
		WESTERN RED CEDAR	3.67		0.38		0.00	0 00
		WILD CUCUMBER	0.00	0.00 1.00	0.63 3.38	0.00 2.90	0.00	0.00
		WILD IRIS					2.83	1.75
		WILD RASBERRY	0.00	2.00	0.50	0.50	0.00	0 50
					0.25			0.00
		WOOD STRAWBERRY	4.00	0.00 0.00	0.25	0.00 0.20	0.17	0.00
		YERBA WE SELVA	0.00	0.00	0.75	0.00	0.00	0 . 0 0
		Average =	0.80	1.01	0.64	0.38	0.15	0.16
Mids								
		BLACK HEADED GROSSBEAK	0.00	0.00	0.00	0.10	0.00	0.00
		BROWN CREEPER	0.00	0.00	0.00	0.10	0.00	0.00
		CALIFORNIATOWHEE	0.00	0.00	0.00	0.10	0.00	0.00
		HAIRY WOODPECKER	0.00	0.00	0.00	0.10	0.00	0 00
		HERMIT THRUSH	0.00	0.00	0.13	0.30	0.17	0.25
		HOUSE WREN	0.00	0.00	0.00	0.10	0.00	0.00
		HUTTON'S VIREO	0.00	0.00	0.25	0.50	0.00	0 25
		RED-BREASTED NUTHATCH	0.00	0.00	0.13	0.50	0.33	0.25
		SOLITARY VIREO	0.00	0.00	0.00	0.10	0.00	0.00
		WESTERN TANAGER	0.00	0.00	0.00	0.30	0.00	0.00
		WESTERN WOOD-PEEWEE	0.00	0.00	0.00	0.10	0.00	0.00
		CLOUDED SALAMANDER	0.00	1.00	0.50	0.70	0.17	0.00
		GOPHER SNAKE	0.00	0.00	0.00	0.10	0.00	0.00
		BLACK BEAR	0.00	0.00	0.00	0.10	0.00	0.00
		CALIFORNIA RED-TREE VOLE	0.00	0.00	0.00	0.30	0.17	0 25
		OREGON VOLE	0.00	0.00	0.00	0. IO	0.00	0 00
		PACIFIC JUMPING MOUSE	0.00	0.00	0.00	0.20	0.00	0.00
		SPOTTED SKUNK	0.00	0.00	0.25	0.60	0.00	0.00
		CANYON LIVE OAK	0.00	0.00	0.00	0.60	0 00	0 00
		CEANOTHUSSPP.	0.00	0.00	0.00	0.40	0.00	000
		COYOTE BRUSH	0.00	0.00	0.25	0.40	0.00	0 00
		GOLDEN BACKED FERN	0.00	0.00	0.00	0.30	0.00	0.00
		GRAND FIR	0.00	0.00	0.00	2.27	0.00	0.00
		HONEYSUCKLE	0.00	0.00	0.00	0.50	0.17	0.25
		HORSETAIL	0.00	0.00	0.00	0.30	0.00	0.00

Guild Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Crass	Open	Young	Mid	Late	Old
	PACIFIC MITELLA	0.00 0.00	0.00	0.00 0.00	0.30 0.10	0.00	0 00
	POISON OAK		0.00	0.00		0.00	0.00
	RED ALDER	0.00	0.00		0.38	0.00	0.00
	REDWOOD BEDSTRAW	0.00	0.00	0.25	0.90	0.00	0.25
	VANILLA LEAF	0.00		0.13		0.17	0.00
	WHITE HAWKWEED	0.00		0.00	0.30	0.00	0.00
	WILD SWEET PEA	0.00	0.00	0.00		0.00	
	YERBA BUENA	0.00	0.00	0.00	0.50 0.10	0.00	0.25 0.00
	Average =	**0.00**	0.03	0.06	0.41	0.03	**0.05**
Lates							
	BLACK-THROATED GRAY WARBLER	0.00	0.00	0.00	0.00	0.17	0.00
	CHESTNUT-BACKED CHICKADEE	0.00	0.00	0.38	0.50	0.83	0.00
	COMMON FLICKER	0.00	0.00	0.00	0.00	0.17	0.00
	DOWNY WOODPECKER	0.00	0.00	0.00	0.00	0.17	0.00
	EUROPEAN STARLING	0.00	0.00	0.00	0.00	0.17	0.00
	GOLDEN-CROWNED KINGLET	0.00	0.00	0.00	0.60	1.17	050
	RED-TAIL HAWK	0.00	0.00	0.00	0.00	0.17	0.00
	RUFFED GROUSE	0.00	0.00	0.00	0.00	0.17	0.00
	VARIED THRUSH	0.00	0.00	0.13	0.10	0.33	025
	WESTERN MEADOWLARK	0.00	0.00	0.00	0.10	0.17	0 00
	WINTER WREN	0.00	0.00	0.38	0.10	0.67	0.00
	YELLOW WARBLER	0.00	0.00	0.00	0.00	0.17	0.00
	OPPOSSUM	0.00	0.00	0.00	0.00	0.17	0 00
	SHORTTAIL WEASEL	0.00	0.00	0.00	0.00	017	0 00
	SHREW-MOLE	0.00	0.00	0.00	0.00	0.33	0 00
	STRIPED SKUNK	0.00	0.00	0.00	0.00	0.17	0 00
	TROWBRIDGE SHREW	0.00	0.00	1.25	1.90	3.33	2 50
	WILD PIG	0.00	0.00	0.00	0.00	017	0.00
	MINERS LETTUCE	0.00	0.00	0.00	0.10	1.00	0 00
	MONTIA	0.00	0.00	0.00	0.90	2.67	0.00
	REDWOOD SORREL	0.00	0.00	0.75	1.50	4.67	050
	SWORD FERN	0.00	2:Oo	2.50	4.60	23.33	675
	WOOD FERN	0.00	0.00	0.13	0.10	0.33	0.25
	WOOD NETTLE	0.00	0.00	0.25	0.60	0.67	0.00
	YELLOW WOOD VIOLET	0.00	0.00	0.13	0.60	3.67	0.00
	Average =	**0.00**	0.08	0.24	0.47	1.80	0.43
Olds							
	CALIFORNIA QUAIL	0.00	0.00	0.00	0.00	0.17	025
	HERMIT WARBLER	0.00	0.00	0.38	1.60	1.17	125

Guild Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
		0.00					
	NORTHERN FLICKER	0.00	0.00	0.13	0.10	0.17	0 25
				0.00			
	RED-BREASTED SAPSUCKER	0.00	0.00 0.00	0.00	0.00 0.00 0.00 0.00		0 0 25 25
	RUBBER SHIRT	0.00	0.00	0.00	0.00	0.00	0 25
	NORTHERN FLYING SQUIRREL	0.00	0.00	0.00	0.00	0 00	0.25
	REDBACK VOLE	0.00	0.00	0.25	0.20	0 00	0 75
	CALIFORNIA BEE PLANT	0.00	0.00	0.00	0 00	0.00	0 75
	SLIM SOLOMEN'S SEAL	0.00	0.00	0.13	0.20	1.67	0.00
	TRILLIUM	0.00	0.00	0.00	0.00	0.00	0.25
	Average=	0.00	0.00	0.08	0.19	0.29	0.41
Generalists							
	MOURNING DOVE	0.00	0.00	0.13	0.00	0.17	0 00
	STELLER'S JAY	0.00	0.00	1.00	0.80	1.17	125
	PACIFIC SHREW	0.00	0.00	0.50	0.10	0.50	050
	DOUGLAS FIR	0.00	0.00	23.47	45.52	85.65	1849
	MADRONE	0.00	0.00	0.63	5.28	0.00	4.74
	OREGON GRAPE	0.00		3.25			
	SALAL	0.00	0.00	8.38	0.20	0.17 2.17	1.75 1 50
	UNKNOWN GRASS	0.00	13.38	26.29	12.60	12.50	68.01
	UNKNOWN MOSS	41.67 0.00	2.00	8.50	0.10	0.50	021 25
			0.00	0.75			
	WOOD ROSE	0.33	0.00	0.63	2:oo	0.67	2 00
	Avtragt =	3.82	1.40	6.68	8.88	10.21	9.07

Plant and Animal **Guilds** In Redwood Forests



Appendix D. Guilds in Redwood Forests

16-May-96

Guild Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
Young/Olds							
	CALIFORNIA RED-SIDED GARTER SNAKE			0.13	0.06	0.00	0.16
	Average =			0.13	0.06	0.00	0.16
Mid/Lates							
	CHESTNUT-BACKED CHICKADEE			0.40	1.09	1.30	0.79
	HERMIT WARBLER			0.20	0.79	0.70	1.00
	WILSON'S WARBLER			1.87.	2.00	2.20	1.16
	Average =			0.82	1.29	1.40	0.98
Youngs							
	ALLEN'S HUMMINGBIRD			0.40	0.12	0.00	0.00
	AMERICAN GOLDFINCH			0.27	0.00	0.00	0.00
	ANNA'S HUMMINGBIRD			0.07	0.00	0.00	0.00
	BAND-TAILED PIGEON			0.20	0.12	0.10	0.00
	BEWICK'S WREN			0.27	0.06	0.00	0.00
	CALIFORNIA QUAIL			0.60	0.06	0.10	0.00
	CHIPPING SPARROW			0.13	0.00	0.00	0.00
	COMMON BUSHTIT			0.20	0.03	0. IO	0.00
	DARK-EYED JUNCO			1.40	0.52	0.50	0 58
	EUROPEAN STARLING			0.07	0.00	0.00	0.00
	HAIRY WOODPECKER			0.40	0.27	0.10	0.21
	HOUSE WREN			0.27	0.09	0.00	0 00
	HUTTON'S VIREO			0.47	0.21	0.30	0 05
	MOURNING DOVE			0.07	0.00	0.00	0.00
	NASHVILLE WARBLER			0.07	0.00	0.00	0.00
	NORTHERN FLICKER			0.33	0.03	0.20	0 00
	OLIVE-SIDED FLYCATCHER			1.00	0.18	0.10	0 05
	ORANGE-CROWNED WARBLER			0.27	0.00	0.00	0 00
	PURPLE FINCH			0.13	0.06	0.00	0 00
	RUBY-CROWNED KINGLET			0.13	0.00	0 00	0 00
	RUFOUS HUMMINGBIRD			1.00	0.61	0 40	0.42
	RUFOUS-SIDED TOWHEE			0.07	0 03	0 00	0 00
	SONG SPARROW			0.87	0.30	0 00	0 00
	SWAINSON'S THRUSH			1.00	0.55	0 70	0 16

Child Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
	TREE SWALLOW			0.07	0.00	0.00	0.00
	WESTERN BLUEBIRD			0.13	0.06	000	0.00
	WHITE-CROWNED SPARROW			0.27	0.03	0.00	0.00
	WRENTIT			1.60	0.30	0.00	0.11
	YELLOW-RUMPED WARBLER			0.07	0.00	0.00	0.00
	PACIFIC TREE FROG			0.13	0.00	0.00	0.00
	ALLIGATOR LIZARD			0.67	0.00	0.00	0.05
	W. TERRESTRIAL GARTERSNAKE			0.20	0.00	0.10	0.00
	WESTERN FENCE LIZARD			0.67	0.00	0.00	0.00
	WESTERN SKINK			0.13	0.00	0.00	0.00
	BRUSH RABBIT			0.20	0.00	0.00	0.00
	COAST MOLE			0.07	0.00	0.00	0.00
	DEER MOUSE			1.87	0.45	0.80	0.26
	DUSKY-FOOTED WOODRAT			0.20	0.15	0.10	0.00
	FISHER			0.07	0.03	0.00	0.00
	PACIFIC JUMPING MOUSE			1.40	0.48	0.60	0.26
	PACIFIC SHREW			0.60	0.52	0.50	0.53
	TOWNSEND CHIPMUNK			0.07	0.06	0.00	0.00
	VAGRANT SHREW			0.13	0.00	0.00	0.00
	WESTERN HARVEST MOUSE			0.20	0.03	0.00	0.00
	BLUE-BLOSSOM			5.33	0.03	0.60	0.00
	COAST FIREWEED			1.33	0.15	1.40	021
	COLTSFOOT			1.80	0.33	0.00	005
	COYOTE BRUSH			0.47	0.12	0.00	0 00
	DANDELION			0.73	0.09	0.00	0.00
	ELDERBERRY			0.27	0.00	0.20	0.00
	FIREWEED			2.13	0.18	0 00	0 00
	HORSETAIL			1.27	0.06	0 00	0 00
	INSIDE-OUT FLOWER			0.07	0.00	0 00	0 00
	MANZANITA			0.40	0.00	0.00	0 00
	OREGON GRAPE			0.00	0.39	0.30	005
	PACIFIC STARFLOWER			0.67	0.18	0.20	0 16
	PAMPAS GRASS			5.20	0.27	0 00	0 00
	PEARLY EVERLASTING			2.53	0.17	0.00	0.00
	PURPLE CUDWEED			0.13	0.00	0.00	0.00
	SALMONBERRY			0.33	0.18	0.00	0 00
	TARWEED			1.00	0.30	0.00	0.00
	THISTLE			1.13	0.00	0.00	0 00
	UNKNOWN GRASS			3.13	0.88	0.80	0.79
	UNKNOWN MOSS			0.07	0.09	0.00	063
	VETCH SPP.			2.53	0.18	0.00	0 16
	WILD IRIS			1.27	1.20	0 00	0.05
	WILD RASBERRY			0.27	0.03	0.00	0 00
	YERBA DE SELVA			5.80	2.97	0.10	0.00

Guild	Name	Common Name	Frequency (For animals = sightings/plot, For plants = %cover/plot) Crass	Open	Young	Mid	Late	Old
		Average =			0.83	0.19	0.12	0.07
Mids								
		AMERICAN ROBIN			0.00	0.12	0.00	0.00
		BLACK-THROATED GRAY WARBLER			0.00	0.03	0.00	0.00
		DOWNY WOODPECKER			0.00	0.06	0.00	0.00
		FOX SPARROW			0.07	0.09	0.00	0 00
		GRAY JAY			0.00	0.03	0.00	0.00
		RED-BREASTED NUTHATCH			0.00	0.33	0.00	0.16
		RED-BREASTED SAPSUCKER			0.00	0.06	0.00	0 00
		STELLER'S JAY			0.47	0.76	0.50	0.53
		VAUX'S SWIFT			0.07	0.09	0 00	0 05
		PAINTED ENSATINA			0.00	0.12	0.00	0 00
		SHARP-TAILED SNAKE			0.00	0.03	0 00	0 00
		CHICKAREE			0.00	0.06	0.00	0.00
		COYOTE			0.00	0.03	0.00	0 00
		LONGTAIL VOLE			0.00	0.03	0.00	0.00
		NORTHERN FLYING SQUIRREL			0.00	0.03	0.00	0.00
		PACIFIC WATER SHREW			0.00	0.03	000	0.00
		SPOTTED SKUNK			0.00	0.18	0 10	0.05
		BIG-LEAF MAPLE			0.00	0.05	0.00	0.00
		BOYKINIA			0.00	0.03	0.00	0 00
		CHAIN FERN			0.00	0.03	0.00	0.00
		HONEYSUCKLE			0.00	0.09	0.00	0.00
		RED ALDER			0.00	3.17	0.46	0 19
		RED-FLOWERING CURRENT			0.07	0.09	0.00	0.00
		TRAILPLANT'			0,00	0.03	0.00	0.00
		VANILLA LEAF			0.00	0.03	0.00	0.00
		WILD GINGER			0.00	0.09	0.00	0 00
		WOOD ROSE			0.00	0.03	0 00	0.00
		WOOD STRAWBERRY			0.00	0.03	0.00	0 00
		YARROW			0.00	0.03	0.00	000
		YERBABUENA			0.00	0.03	0.00	0.00
		Average =			0.02	0.19	0.04	0.03
Lates								
		GOLDEN-CROWNED KINGLET			0.07	0.79	1.70	0.68
		HERMIT THRUSH			0.33	0.48	0.60	0.26
		PINE SISKIN			0.00	0.09	0.10	0.05
		RED-TAIL HAWK			0.07	0.06	0.10	0.00
		WINTER WREN			0.13	1.27	1 60	1 26
		OREGON ENSATINA			0.00	0.06	0.20	0 16

Guild Name	Common Name	Grass	Open	Frequency (For animals = sightings/plot, For plants = %cover/plot) Young	Mid	Late	Old
	RED-LEGGED FROG			0.00	0.00	0.10	0 00
	BOBCAT			0.07	0.09	0.20	0 00
	CALIFORNIA RED-TREE VOLE			0.00	0.06	0.20	0.00
	MULE DEER			0.07	0.06	0.20	0.00
	BRACKEN FERN			0.07	0.55	0.70	0.11
	FIVE-FINGER FERN			0.00	0.15	3.30	0.26
	GOOSEBERRY			0.00	0.00	0.50	0.05
	HEDGE NETTLE			0.00	0.00	0.30	0.00
	LADY FERN			0.07	0.09	0.20	0.1 1
	OCEAN SPRAY			0.00	0.39	0.70	0.16
	POISON OAK			0.00	0.27	1.70	0.05
	STINGING NETTLE			0.07	0.00	1.20	0.00
	THIMBLEBERRY			0.00	0.39	1 20	0.16
	TRILLIUM			0.00	0.09	0.20	0.05
	WATER LEAF			0.00	0.00	0.10	0.00
	Average =			0.04	0.23	0.72	0.16
Olds							
	BROWN CREEPER			0.00	0.70	0.60	0.89
	COMMON RAVEN			0.00	0.03	0.00	0.21
	VARIED THRUSH			0.07	0.30	0.20	0.63
	CALIFORNIA SLENDER SALAMANDER			0.27	0.33	0.20	0.79
	CLOUDED SALAMANDER			0.07	0.00	0.10	037
	PACIFIC GIANT SALAMANDER			0.07	0.06	0.00	0 11
	TAILED FROG			0.00	0.06	0.00	0 11
	GRAY FOX			0.07	0.00	0.00	0.16
	HOUSE MOUSE			0.00	0.00	0.00	0.05
	REDBACK VOLE			0.07	0.18	0.10	021
	RINGTAIL			0.00	0.00	0.00	0.11
	SHREW-MOLE			0.00	0.00	0.00	0 05
	AMERICAN HOLLY			0.00	0.00	0 00	0.05
	CALIFORNIA BEDSTRAW			0.00	0.06	000	0 16
	DEER FERN			0.00	1.21	0.60	2.74
	HUCKLEBERRY			6.53	12.85	12.30	29.58
	RED HUCKLEBERRY			0.07	0.36	0.60	089
	WESTERN HEMLOCK			0.00	0.00	0.00	005
	WOOD FERN			0.00	0.03	0.00	0.05
	Average =			0.38	0.85	0.77	1.96
Generalists							
	PACIFIC-SLOPE FLYCATCHER			2.27	2.70	2.50	3 00
	BLACK BEAR			0.13	0.09	0.10	0 05

Guild Name	Common Name	Frequency (Far animals = sightings/plot, For plants = %cover/plot) Grass	Open	Young	Mid	Late	Old
	OREGON VOLE			0 13	0 09	0 00	0 II
	RACCOON			0.00	0.03	0 00	0.05
	TROWBRIDGE SHREW			2.27	1.94	1.50	1.95
	BLACKBERRY			1.40	0.45	1.60	0.00
	CA. BAY LAUREL			0.00	0.16	1.32	1.00
	GRAND FIR IR			14.81	16.52	16.05	
	MADRONE			0.80 0.18	3.56 0.02	0.00 2.68	15.81 0 44 0.62
	REDWOOD SORREL			17.13	56.21	56 12	61.83
	SALAL			10.67 0.33	12.24	3.48 0 60 11.40	2 79 17.79
	SWORD FERN			1.33	12.33	13.30	1000
	TAN OAK			16.70	12.87	21.50	17.43
	Average =			4.54	8.18	8.58	8.86

Appendix E. Seral Dependency Report

19-May-96

Forest Type	Seral stage	Common Name	Frequency of Occureace
Doug-Fir			
	Perennial Grassland		
		BARN SWALLOW	0.33
		CHIPPING SPARROW	0.33
		LARK SPARROW	O X
		BADGER	0.33
		BRODIAEA	1.67
		CALIFORNIA POPPY	1
		Number of Species =	6
	Young Forest		
		AMERICAN KESTREL	0.125
		ANNA'S HUMMINGBIRD	0.125
		BAND-TAILED PIGEON	0.125
		BREWER'S BLACKBIRD	0.25
		COMMON BUSHTIT	0.12s
		COMMON YELLOWTHROAT	0.125
		FOX SPARROW	0.125
		GOLDEN EAGLE	0.125
		MACGILLIVRAY'S WARBLER	0.5
		RUFOUS-SIDED TOWHEE	0.125
		SWAINSON'S THRUSH	0.12s
		WHITE-CROWNED SPARROW	0.5
		DUSKY-FOOTED WOODRAT	0.125
		MULE DEER	0.125
		PINYON MOUSE	0.12s
		- G R A Y SQUIRREL	0.12s
		WESTERN HARVEST MOUSE	0.125
		BLEEDING HEART	0.125
		BLUE-BLOSSOM	0.5
		FALSE SOLOMON'S SEAL	0.125
		QUEEN ANNES LACE	0.125
		STINGING NETTLE	1.75
		WESTERN RED CEDAR	0.385
		YERBA DE SELVA	0.75
		Number of Species =	24
	Mid Successional		
		BUCK HEADED GROSBEAK	0.1
		BROWN CREEPER	0.1
		CALIFORNIA TOWHEE	0.1

Forest Type	Seral Stage	Common Name	Frequency of Occurence
		HAIRY WOODPECKER	0.1
		HOUSE WREN	0.1
		SOLITARY VIREO	0.1
		WESTERN TANAGER	0.3
		WESTERN WOOD-PEEWEE	0.1
		GOPHER SNAKE	0.1
		BLACK BEAR	0.1
		OREGON VOLE	0.1
		PACIFIC JUMPING MOUSE	0.2
		CANYON LIVE OAK	0.6
		CEANOTHUS SPP.	0.4
		GOLDEN BACKED FERN	0.3
		GRAND FIR	2.268
		HORSETAIL	0.3
		PACIFIC MITELLA	0.1
		POISON OAK	0.3
		RED ALDER	0.384
		WILD SWEET PEA	0.5
		YERBA BUENA	0.1
		Number of Species =	22
	Late Successional		
		BLACK-THROATED GRAY WARBLER	0.167
		COMMON FLICKER	0.167
		DOWNY WOODPECKER	0.167
		EUROPEAN STARLING	0.167
		RED-TAIL HAWK	0.167
		RUFFED GROUSE	0.167
		YELLOW WARBLER	0.167
		OPPOSSUM	0.167
		SHORTTAIL WEASEL	0.167
		SHREW-MOLE	0.333
		STRIPED SKUNK	0.167
		WILD PIG	0.167
		Number of Species =	12
	Old-Growth		
		RED-BREASTED SAPSUCKER	0.25
		VAUX'S SWIFT	0.25
		RUBBER BOA	0.25
		NORTHERN FLYING SQUIRREL	0.25
		CALIFORNIA BEE PLANT	0.75
		TRILLIUM	0.25
		Number of Species =	6
Redwood			

Forest Type	Seral Stage	Common Name	Frequency of Occurence
	Young Forest		
		AMERICAN GOLDFINCH	0.267
		ANNA'S HUMMINGBIRD	0.067
		CHIPPING SPARROW	0.135
		EUROPEAN STARLING	0.067
		MOURNING DOVE	0.067
		NASHVILLE WARBLER	0.067
		ORANGE-CROWNED WARBLER	0.267
		RUBY-CROWNED KINGLET	0.133
		TREE SWALLOW	0.067
		YELLOW-RUMPED WARBLER	0.067
		PACIFIC TREE FROG	0.133
		WESTERN FENCE LIZARD	0.667
		WESTERN SKINK	0.133
		BRUSH RABBIT	0.2
		COAST MOLE	4067
		VAGRANT SHREW	0.153
		INSIDE-OUT FLOWER	0.067
		MANZANITA	0.4
		PURPLE CUDWEED	0.133
		THISTLE	1.133
		Number of Species =	20
	Mid Successional		
		AMERICAN ROBIN	0.121
		BLACK-THROATED GRAY WARBLER	0.030
		DOWNY WOODPECKER	0.061
		GRAY JAY	0.030
		RED-BREASTED SAPSUCKER	0.061
		PAINTED ENSATINA	0.121
		SHARP-TAILED SNAKE	0.030
		CHICKAREE	0.061
		COYOTE	0.030
		LONGTAIL VOLE	0.030
		NORTHERN FLYING SQUIRREL	0.030
		PACIFIC WATER SHREW	0.030
		BIG-LEAF MAPLE	0.045
		BOYKINIA	0.030
		CHAIN FERN	0.030
		HONEYSUCKLE	0.091
		TRAIL PLANT	0.030
		VANILLA LEAF	0.030
		WILD GINGER	0.091
		WOOD ROSE	0.030
		WOOD STRAWBERRY	0.030
		YARROW	0.030

Forest Type	Seral Stage	Common Name	Frequency of Occurence
		YERBA BUENA	0.030
		Number of Species =	23
	Late Successional		
		RED-LEGGED FROG	0.1
		HEDGE NETTLE .	0.3
		WATER LEAF	0.1
		Number of Species =	3
	Old-Growth		
		HOUSE MOUSE	0.053
		RINGTAIL	0.10s
		SHREW-MOLE	0.053
		AMERICAN HOLLY	0.053
		WESTERN HEMLOCK	0.052
		Number of Species =	5